WEST MARKETING ISSUE
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Material Cost-Shipment Value Ratio Holds Steady

Bureau of the Census Reports Little Change From 1947 to 1955

WASHINGTON — The ratio between cost of materials and value of shipments for the fertilizer and pesticide industries changed little between 1947 and 1955, according to a recent release on the 1955 annual survey of manufacturers, according by the Bureau of the Census.

For fertilizers in the Census code 2871 the cost of materials in 1955 totaled $369,930,000, which was 69% of the value of shipments, which amounted to $535,521,000.

In 1954 this ratio was 68%, with cost of materials at $362,150,000 and value of shipments at $533,448,000. In 1947 cost of materials was $197,558,000 and value of shipments was $312,229,000, for a ratio of 63%.

Figures for fertilizers, mixing only, in the Census code 2872 show that cost of materials in 1955 totaled $244,352,000, which was 74% of the value of shipments, $327,976,000. This ratio was 75% in 1954 when cost of materials was $248,204,000 and value of shipments was $329,328,000. In 1947 cost of materials was $136,479,000, or 71% of value of shipments at $193,318,000.

For insecticides and fungicides, Census code 2897, cost of materials in 1955 amounted to $121,153,000, or 63% of value of shipments at $193,412,000. In 1954 with cost of materials at $112,514,000 and value of shipments at $174,613,000 the ratio was 64%. In 1947 it was 63% with cost of materials at $41,994,000 and value of shipments at $67,010,000.

For most of the chemical and rubber industries during the years 1955, 1954 and 1947 the cost of materials amounted to about half the value of shipments.

National Potash Co. Bid Accepted for Public Land Lease

WASHINGTON — The Department of the Interior has accepted a lump sum bonus bid of $1,867,340 by National Potash Co., New York, for potash leasing of 1,840 acres of public land in the Carlsbad, N.M., area.

National's bid was the highest of five submitted. Second highest cash bid was $1,012,345.70 by Duval Sulphur & Potash Co. The sale was held by the Bureau of Land Management.

In addition to the cash bonus, National will pay a 7½% royalty on gross output plus nominal per-acre rent to the government. The area has an estimated gross value of $100 million.

June Super Output Up Over Year Ago

WASHINGTON—Production of superphosphate and other phosphatic fertilizers during June totaled 170,537 short tons, up slightly from output of 169,568 tons in June, 1956, according to the Bureau of the Census.

June, 1957 shipments amounted to 81,963 tons, compared with 82,758 tons in June a year earlier, while stocks on hand last June 30 totaled 271,717 tons, a decrease from 388,045 tons on June 30, 1956.

The production in June of this year included 83,506 tons of normal and enriched, 68,355 tons of concentrated and 18,676 tons of other phosphatic fertilizers, including wet-base goods.

New Liquid Plant Going Up in Kansas

LEWIS, KANSAS — Henry Owens has leased a site on old highway 50 and is installing machinery for a wholesale liquid fertilizer plant here. He will produce straight nitrogen and other fertilizers. Installations will include mixing and storage tanks. One employe will be hired.

SHELL WORKSHOP TOLD

Control of Nematodes With Soil Fumigants Gives Profit Of Over Four Times the Cost

ORLANDO, FLA.—Man's hopes for outwitting the crop-destroying nematode were described here Aug. 21-22 by a panel of seven scientists. Speaking to more than 300 farmers and growers attending the Shell Chemical Corp. Nematology Workshop, the panel hit these major points:

1. Nematodes infest everything that grows in Florida. Farmers can control nematodes with soil fumigants usually at a profit in excess of four times the cost of the chemical.

2. Experiments to control the burrowing nematode on living citrus trees are still inconclusive.

3. Annual crops, such as vegetables, strawberries and tobacco, can be protected against nematodes by soil chemicals.

4. Science has discovered more about nematodes, thus knows more about how to control them.

A. L. Taylor, who heads the nematology section of the U.S. Department of Agriculture, Beltsville, Md., said that some species of nematode attack all of Florida's crops. Farmers can control most of the pests with soil chemicals, with a cash return up-

(Continued on page 21)

Recoverable Potash Reserves In Canadian Field Estimated At 100,000 Million Tons

WASHINGTON — Recoverable potash reserves in the Canadian field are estimated at 100,000 million tons, nearly double the known reserves in New Mexico, according to the current issue of Chemical & Rubber, publication of the Business & Defense Services Administration, U.S. Department of Commerce.

The Canadian discovery was reported in the summer of 1946 near Unity, Saskatchewan. The potash field extends about 340 miles east and west across central Saskatchewan with an average width of more than 15 miles.

Following is the special report on the deposits from the Commerce publication. It is based on a report from the U.S. consulate general, Winnipeg, Manitoba.

Currently, 18 companies have leased about 4 million acres for exploration or development. The companies include most U.S. potash producers, as well as Canadian and European interests. It is believed that no more than three firms are actively engaged in sinking shafts for production.

The most advanced of these is a U.S. producer, who holds 200,000 acres under lease at Patience Lake, 15 miles east of Saskatoon, almost in the center of the potash belt. The shaft is past the halfway mark. to mineral beds at a depth of about 3,000 feet. Construction of the mill, concentrator, and refinery has begun.

The surface plant will have a daily capacity for treating 4,000-4,500 tons of ore and will be designed to permit expansion when sales warrant an increase. The company expects to be in production by late 1958 or early 1959.

A Canadian company, which was reported the first to sink a shaft in the new field, suspended operations last year because of financial difficulties.

A second U.S. producer announced in May, 1957 that a contract had been let for construction of a mine shaft at Yarbo about 150 miles east of Regina and 25 miles from the Manitoba border.

An active developer of Canadian potash has announced that its holdings have been thoroughly drilled and have proved to be of higher grade than those in New Mexico. It also

(Continued on page 8)

Contract Let for New Nitric Acid Plant in South Africa

CINCINNATI — The African Explosives and Chemical Industries, Ltd. (a subsidiary of Imperial Chemical Industries, Ltd.) recently awarded a contract to Chemical and Industrial International, Ltd., of Nassau, Bahamas, for the construction of a 150 ton per day nitric acid plant which is to be integrated with the firm's existing facilities near Johannesburg, South Africa.

Chemical and Industrial International, Ltd., of Nassau, Bahamas, has the right to license all of the processes of the Chemical and Industrial Corp., Cincinnati, which will do the design and engineering work on this plant. This unit is C&I's standard high pressure (approximately 100 psi) nitric acid plant. It will be equipped with an electric motor driven centrifugal compressor and expander turbine. The plant is expected to go on stream during the spring of 1958.

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A. R. Maas Chemical Breaks Ground for Processing Plant

RICHMOND, CAL.—Official ground breaking occurred here Aug. 21 for a new processing plant of the A. R. Maas Chemical Co., Division of Victor Chemical Works. Raymond L. Geiler, president of Maas, turned the first spadeful of earth for what will be units producing phosphoric acid and catalyst for the food, chemical, petroleum and agricultural industries.

A. R. Maas Chemical Co. Division has its main office and plant in South Gate, Cal., and recently purchased the 80-acre site in one of Richmond's heavy industrial areas. The firm plans to use 15 to 20 acres for initial construction. Mr. Geiler pointed out that immediate plans call for employment of about 40 workers for these initial units, with plans for future expansion. Initial production is expected to begin within six months.

Mr. Geiler was introduced by Joseph A. Dennis, who will assume duties as plant superintendent of the Richmond works. Also present were John L. Wagner, to be production manager, and Charles P. Hutton, office manager.

Optimum Use of Fertilizer Is Best Income Booster

By Dr. M. S. Williams*
Chief Agricultural Economist
National Plant Food Institute
Washington, D.C.

More and more farmers are asking, "How much lime and fertilizer should I use to make the most money on my farm?" To answer this question, all of us—county agents and other field workers, and members of the fertilizer industry—have both an opportunity and a responsibility.

An individual might find out for himself by experimenting on his own farm over a period of years—if he can stay in business long enough. Obviously, this is a very expensive and difficult way for the farmer to find out how much plant food to apply. The best way for the farmer to find out how much fertilizer to use is to get a soil test, to use college recommendations on use of lime and fertilizer, and to fit these to his own situation.

I am convinced that if the farmer understands and applies a few simple principles he can make better use of plant food. If he applies these principles, he will increase his returns and profits. Then he will be a more efficient and prosperous farmer and the fertilizer industry has a better customer.

It is significant to look once more at the economics of fertilization. The story can be boiled down to some simple yet meaningful principles which can be presented to farmers, and they will understand and appreciate what we're telling them.

First, one must know what physical response can be obtained from applying fertilizer. Chart 1 may be called a model response curve. The slope and shape of the curve varies from crop to crop and from soil to soil, yet the fundamental principle is the same. At low rates of application, the curve is steep—another unit of fertilizer gives a relatively large response in yield. As more and more fertilizer is applied, the curve flattens out until it reaches the point where little or no further response is obtained from more fertilizer.

Perhaps people in the trade are so familiar with this curve that it is assumed that everyone knows about it. Yet how many farmers really understand the importance of the nature of this curve to their own farm business?

We must depend on research to tell us the shape of this curve for a given crop under given conditions.

Another important consideration is that research has extended—and likely will extend—the ceiling, or leveling off of this curve. Chart 2 shows, in effect, what the development of hybrid corn did. This means that medium rates of fertilizer become even more profitable and that higher rates that formerly were not practical now become profitable. The advantage of many developments such as hybrid corn lies in their ability to respond to higher levels of plant food. At low fertility levels, hybrid corn is no better than old varieties. The advantage is in extending the ceiling of profitable use of fertilizer.

Another characteristic of this curve is that it takes more fertilizer to get the same increase in yield at higher levels. For example, in Chart 3, we can produce 3 units of crop with 1 unit of fertilizer. To double the yield to 6 units, it takes about 3½ units of fertilizer. The question the farmer has to answer is, which will give him the greatest returns?

Only after we know what the response curve is—or the increase in yield due to fertilizer—can we figure out the most profitable rate to use.

Chart 4 shows average results of a number of fertilizer experiments with corn in one of our eastern states. This shows:

(1) A step-like increase in yield (notice how the curve resembles our first chart).

(2) Net profits increase from $7.30 an acre with no fertilizer to $63.90 at the most profitable level.

(3) Fixed costs change very little with increase in fertilizer used and yield.

(4) Fertilizer costs increase, but not as rapidly as returns for labor and profit.

This brings us to another one of the fundamental principles shown in Chart 5. With no fertilizer, it cost $1.24 a bushel to produce corn; at the higher rate, it cost only $.71 a bushel.

This is the core of economics of fertilizer use. The farmer will make more net profit by growing a given amount of corn on less acreage with adequate fertility. Why? Because the increased use of fertilizer contributes to efficiency of production by lowering per unit costs and increasing profits per unit and per acre.

Farmers want to know more than just the physical response to plant food. They want some guides from the economist and the fertilizer dealer as to what effect the use of plant food will have on net profits. It is doubtful if they expect us to be able to tell them to the last cent what returns they can expect, but they rightly expect some guides that will be accurate enough to help them plan their operations for a year or so ahead.

This picture of increasing farm profits is not meant to give the impression that lime and fertilizer are all the farmer needs to consider. The farmer will realize highest returns from plant food only when his fertility program is fitted in with other improved practices in a sound management program for the whole farm. The combination of plant food and improved practices means the most farm profits.

From a research point of view, this matter of profits from fertilizer and lime is necessarily complicated. We can get the most benefit from our research efforts on these complicated problems by combining the talents of the different scientists—agronomists, soil scientists, economists, engineers and others. But once we get some answers, we must present these to the farmer in the language he understands. And he wants to know—"What does this mean to me?"

This paper has presented the principles involved in figuring returns and profits from plant food. Such calculations are based on three things:

(1) The increase in yield from added amounts of lime and fertilizer.

(2) The value of the increased yield minus the costs of securing the increase.

(3) The net profit attributable to lime and fertilizer.

Proper use of lime and fertilizer offers one the greatest opportunities available for increasing profits to farmers.

* Talk presented at Pennsylvania Fertilizer and Lime Conference, Pennsylvania State University, University Park, Pa., July 11, 1957.

CHART 1

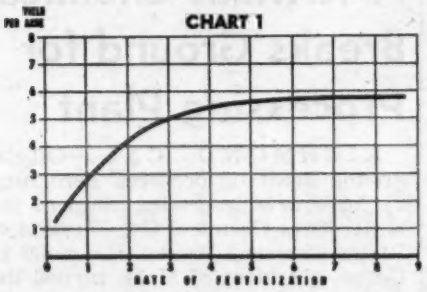


CHART 2

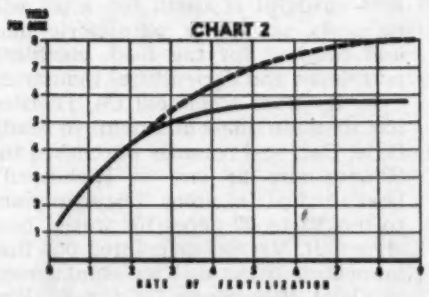


CHART 3

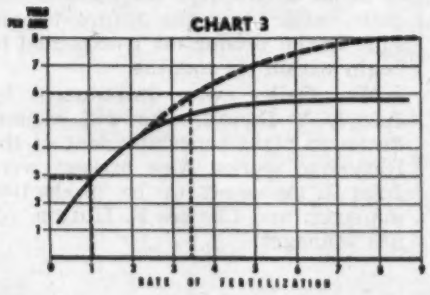


CHART 4

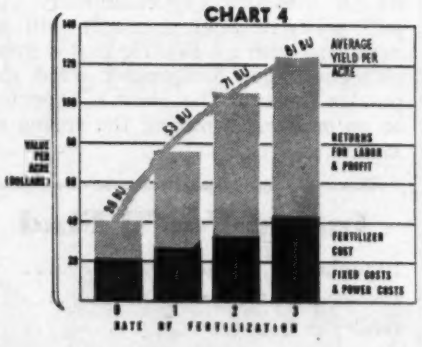
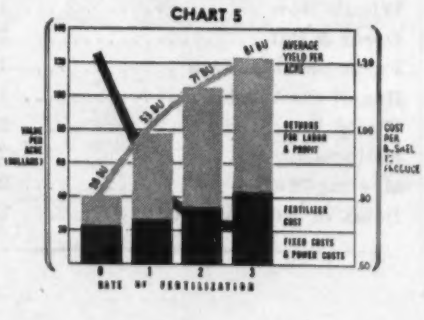


CHART 5



Virginia-Carolina Closes Three Plants

RICHMOND, VA. — Virginia-Carolina Chemical Corp. has closed fertilizer plants at Atlanta and Augusta, Ga. and at Wadesboro, N.C.

Charles T. Harding, general manager of V-C's manufacturing department, said all three were marginal plants and each was located near another V-C plant. Each plant employed no more than 40 or 50 persons at its busiest season, Mr. Harding said. V-C's latest annual report showed 37 fertilizer plants.

In addition, the firm has closed its fertilizer sales offices at Savannah and Atlanta, Ga., and consolidated the work at a sales office in Albany, Ga.

The steps follow V-C's announcement last month that it was reorganizing its fertilizer sales organization along regional lines, with the establishment of four regions.

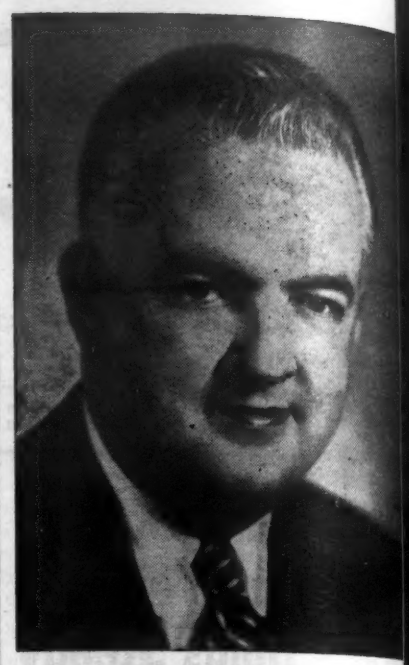
Roberts Chemicals Announces Fungicide

NITRO, W. VA.—Roberts Chemicals Co., Inc., here has announced a new fungicide, which the firm says will control many plant diseases, such as early and late blight, downy mildew and helminthosoprium leaf blight.

The product is diammonium ethylene bisdithiocarbamate and is being marketed under the trade name Amobam for use on vegetable crops. It was developed by the research department of Roberts Chemicals.

The fungicide is available in 5 and 30 gallon drums and can be shipped in a concentrated form. The company said that it has been tested at several universities in the past three years and has been used commercially by growers in the central and eastern parts of the U.S.

The firm said that the fungicide is compatible with most insecticides and may be used with sulfur and miticides.



M. G. Woodward

M. G. Woodward Named Vice President of Southern Nitrogen Co.

SAVANNAH, GA. — M. G. Woodward was elected a vice president of Southern Nitrogen Co., Inc. at a recent meeting of the board of directors. Mr. Woodward was previously treasurer and assistant secretary of the company and will continue to serve in these offices.

Before joining Southern Nitrogen Co., Inc., whose new $14,000,000 plant in Savannah, Ga., produces nitrogen products, Mr. Woodward was executive assistant to Nathan W. Levin, financial consultant to the heirs of Julius Rosenwald. Previous to that he was financial assistant to Joseph P. Kennedy, former ambassador to the Court of St. James. Mr. Woodward also served as an account manager in the New York office of Arthur Andersen & Co., public accountants and auditors.

Fertilizer Can Restore Forage on Poor Acres, Missouri Expert Says

COLUMBIA, MO. — University of Missouri experimental plots show the possibilities for increasing forage production on many of the depleted soils of the state, John Falloon, University of Missouri extension soils specialist, told Soils and Crops Field Day visitors.

As proof, Mr. Falloon pointed to test plots during Field Day tours that are yielding twice as much forage as plots next to them. The difference is that the high-yielding plots had been treated with proper amounts of fertilizer while the other plots were left in a depleted condition.

In some seasons, yield increases have been from one ton of weedy forage to three to four tons of high-quality hay. However, the average yield would probably be around 2½ tons on the properly-fertilized plots.

The contrast between the treated and untreated plots this spring has been especially great, Mr. Falloon noted, because there has been plenty of moisture and the fertilized plots have been able to make full use of the available plant food.

BECKMAN APPOINTMENT

LOS ANGELES—The appointment of Michael S. Dayton as marketing manager of the Berkeley Division of Beckman Instruments, Inc., has been announced by John F. Bishop, division general manager. Mr. Dayton, formerly assistant marketing manager, will coordinate sales, sales promotion and market research programs for Beckman-Berkeley counting and test equipment, analog computers and nuclear instrumentation.

Industry Patents and Trademarks

2,802,728

Superphosphate and its Manufacture. Patent issued Aug. 13, 1957 to Lloyd L. Jaquier, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Co. In the process for production of superphosphate from phosphate rock which comprises acidulation of comminuted phosphate rock with sulfuric acid by mixing said rock with sulfuric acid and by denning with sulfuric acid and by denning and curing the reaction mass which results from said mixing, the step of providing a wetting agent in the sulfuric acid during said acidulation of said rock therewith, said wetting agent being substantially stable in the presence of said sulfuric acid and being a chemical compound selected from the group consisting of: a hydrocarbon sulfonic acid, a hydrocarbon sulfuric acid, petroleum green acids, an alkyl amide sulfuric acid, an alkaline earth and an alkali metal salt of at least one of the foregoing said acids; each of said acids and salts thereof containing from 6 to 30 carbon atoms; a compound of the formula

$$R—X—[(CH_2)mO]nZ$$

where R is a hydrocarbon group containing 6 to 20 carbon atoms inclusive, X is selected from the group consisting of oxygen and sulfur, m is selected from the group consisting of 2 and 3, n is selected from the group consisting of the integers from 4 to 12 inclusive, and Z is selected from the groups consisting of hydrogen and the—SO_3M group where M is selected from the group consisting of hydrogen, alkaline earth metal and alkali metal.

2,802,770

2-Alkyl-3,4,5,6-Tetrahydropyrimidine Nitrate and Fungicidal Composition Thereof. Patent issued Aug. 13, 1957 to Carl M. Monroe and William E. Rader, Modesto, Cal., and William J. Raab, Hayworth, N.J., assignors to Shell Development Co., Emeryville, Cal. A fungicidal composition comprising 2-heptadecyl-4,4,6-trimethyl-3,4,5,6 - tetrahydropyrimidine nitrate dissolved in an inert organic solvent therefor and a surface active agent adapted to disperse the solution in water.

2,802,768

Method of Treating Fungus Infected Soil Employing a Haloketone. Patent issued Aug. 13, 1957 to Lloyd J. Meuli, Long Beach, Cal., assignor to the Dow Chemical Corp., Midland, Mich. An agronomical practice which comprises impregnating fungus infected soil with from 5 to 50 parts by weight of a haloketone compound per million parts by weight of the soil and thereafter planting in the treated soil, the haloketone compound being characterized by the formula

$$X—CH_2—\overset{O}{\overset{\|}{C}}—R$$

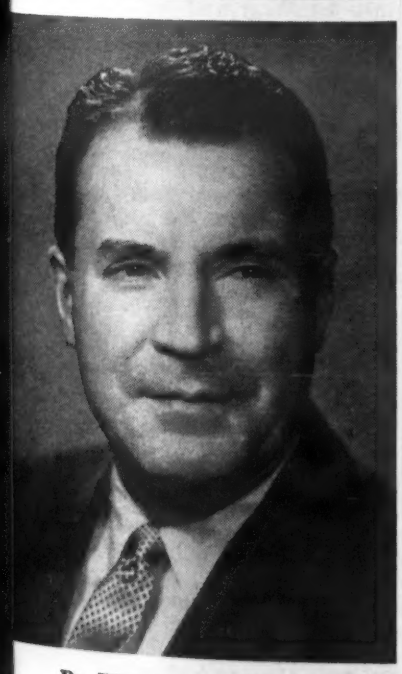
wherein X is a member of the group consisting of chlorine and bromine and R is an alkyl radical containing from 2 to 4 carbon atoms, inclusive.

2,802,769

Insecticides. Patent issued Aug. 13, 1957 to Frederick G. Van Stryk and Marshall Kulka, Guelph, Ontario, Canada, assignors to United States Rubber Co., New York. An insecticidal composition comprising a chlorobenzyl-beta-thiocyanoethylsulfide and a surface-active dispersing agent.

2,802,771

Fungicidal Compositions Containing Salts of a Hydroxyquinoline and the Method for Preparing the Same. Patent issued Aug. 13, 1957 to Ellis K. Fields, Chicago, Ill., and Roger W. Watson, Highland, Ind., assignors to Standard Oil Co., Chicago, Ill. The method of organic solvent solubilizing a heavy metal salt of 8-hydroxyquinoline comprising mixing said salt with a hydrolyzed reaction product of a phosphorus sulfide and an olefin polymer, while heating said mixture at a temperature of from about 200° F. to about 400° F. and maintaining said temperature for a period of from 10 minutes to about 120 minutes after all said incremental salt of 8-hydroxyquinoline has been added, said hydrolyzed reaction product of the phosphorus sulfide and the olefin polymer being prepared by reacting said olefin polymer with from about 1% to about 50% of a phosphorus sulfide at a temperature of from about 200° F. to about 600° F., and hydrolyzing the resultant reaction product at a temperature of from about 220° F. to about 500° F.



Dr. William H. Schuette

DOW DIRECTOR — Dr. William H. Schuette, general manager of the Dow Chemical Co.'s Midland Division, has been elected to the company's board of directors. He was elevated to the position of Midland Division general manager in 1955.

Industry Trade Marks

.The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Citrosan, in capital letters, for a preservative preparation for citrus and other fruits which functions primarily as a fungicide. Filed Sept. 15, 1955 by Monsanto Chemicals Ltd., London, England. Owner of British Reg. No. 716,366 dated Apr. 1, 1953.

Floran, in capital letters for a soil conditioner. Filed Jan. 31, 1957 by Jaffe Cotton Products Mfg. Co., Inc., Dallas, Texas.

NEW NAME

MIDLAND, MICH. — Methyl bromide containing chloropicrin as an odorizing agent is now being sold under the trade mark, Profume, the Dow Chemical Co. announces. The material has been on the market for several years and has been known simply as methyl bromide odorized with chloropicrin, according to J. L. Maxwell of Dow's agricultural chemical sales staff. Odorized methyl bromide is used as a fumigant to protect stored commodities against insect and rodent infestation.

ILLINOIS SOIL MEETINGS

URBANA, ILL.—The University of Illinois has scheduled soil experiment field meetings at Toledo Sept. 6, Clayton Sept. 9, Oquawka and Dixon Sept. 10, Kewanee Sept. 11, Lebanon and Mount Morris Sept. 12, Carbondale Sept. 13 and Elwood and Joliet Sept. 19.

Fertilizer Application Committee to Meet Aug. 27 at Stanford

WASHINGTON — Nationally-known agricultural scientists will be heard at the 33rd annual meeting of the National Joint Committee on Fertilizer Application to be held in conjunction with the American Society for Horticultural Science and the Western Society of Soil Science, at Stanford University, Palo Alto, Cal., Aug. 27, Dr. Willard H. Garman, secretary of the committee and chief agronomist of the National Plant Food Institute, has announced.

Dr. O. A. Lorenz, vice chairman of the committee, University of California, Riverside, will preside. C. E. Guelle of the International Harvester Co., Chicago, is chairman of the committee.

Speakers and their subjects for the meeting are:

Dr. Hans Jenny, professor of soil chemistry and morphology, department of soils and plant nutrition, University of California, Berkeley, "Availability of Various Phosphorus Sources in California Soils;" Dr. W. W. Jones, horticulturist, department of horticulture, University of California, Riverside, "Urea Sprays on Citrus;" Dr. Francis Broadbent, associate soil microbiologist, department of soils and plant nutrition, University of California, Davis, "Nitrification of Ammonia-Containing Compounds;" Dr. Leon Bernstein, plant physiologist, U.S. Salinity Laboratories, Riverside, "Movement of Soluble Salts in Irrigated Beds;" Dr. Walter P. Mortensen, assistant soil scientist, Western Washington Experiment Station, Puyallup, Wash., "Placement of Liquid and Dry Fertilizers on Vegetable Crops in Washington;" Dr. F. H. Leavitt, Shell Development Co., Modesto, "Application of Liquid and Gaseous Fertilizers," and Dr. N. F. Childers, chairman, department of horticulture, Rutgers University, New Brunswick, N.J., "The Occurrence and Methods for Correcting Nutrient Deficiencies in Deciduous and Small Fruit Plantings in the United States."

The annual business meeting of the National Joint Committee on Fertilizer Application will be held Aug. 26 at Stanford.

George F. Helfert Named Richmond Guano Treasurer

RICHMOND, VA.—George F. Helfert has been elected treasurer of the Richmond Guano Co., according to an announcement by L. D. George, vice president.

Mr. Helfert, a native of Richmond, has been with the firm as assistant treasurer since April, 1956. He is a certified public accountant, and formerly was a partner with Leach, Calkins and Scott. He served as a captain in the air force during World War II.

James Branstetter

JOINS GRAND RIVER— The appointment of James Branstetter as sales representative for the Grand River Chemical Division of Deere & Co., in New Mexico, Arizona and West Texas, has been announced by John R. Taylor, Jr., sales manager. Mr. Branstetter is a 1957 graduate of New Mexico A&M College where he received his degree in agronomy. Mr. Branstetter will make his home in Albuquerque.

Pacific Northwest Has Bumper Wheat Yields

PORTLAND, ORE. — Government acreage allotments failed to cut Pacific Northwest wheat production this year in the face of ideal weather conditions and modern-day equipment, sprays and fertilizers.

Oregon, Washington and Northern Idaho farmers on Aug. 1 were harvesting a 105,313,000 bu. wheat crop, some 10,272,000 bu. more than last year and only 4,247,000 bu. below average, reports Harold F. Prindle, agricultural statistician acting in charge of the Oregon U.S. Department of Agriculture Crop Reporting Service here.

More wheat on fewer acres was made possible by near record or record yields in major producing districts with Mr. Prindle reporting that this year's average yield for both spring and winter wheat at 35.5 bu. an acre compared with last year's 31.4 bu. average and the 10 year average of 26.3 bu.

The tendency of Northwest wheat growers to plant land formerly planted to wheat with barley is reflected by crop of this grain that is sharply larger than last year and average.

This year's barley crop, estimated by the USDA at 71,733,000 bu., compares with the 1956 crop of 59,915,000 bu. and the 32,763,000 bu. average for Oregon, Washington and Idaho.

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INSECT, PLANT DISEASE NOTES

Insect Damage on Increase in North Carolina

RALEIGH, N.C. (Aug. 22) — Fall army worm and corn ear worm damage increasing on soybeans, late corn and peanuts. Tuber moth in Irish potatoes appears to be a greater problem than usual this year. Spider mites continue to cause severe local damage to peanuts in many counties.—H. E. Scott.

Cotton Insect Activity Increases in Arizona

PHOENIX (Aug. 16) — Arizona's cotton crop continues to progress nicely, and harvest is well under way in at least three counties. Some of the crop has been bottom defoliated, particularly in the Yuma area. Insect populations have increased sharply in most sections, and may cause serious damage if not controlled.

In Pinal County Keith Jones, assistant county agent, reports considerable looper damage. Counts are very high in many fields. Lygus are likewise high in population, with counts ranging from 10 at Casa Grande to 40 in the Coolidge, Florence and Magma districts. Bollworm populations are high around Maricopa and Stanfield, and cotton leaf perforator counts are up near Eloy. Many beneficial insects are also present in most areas. Crop dusters are extremely busy.

Graham County Agent Sears reports bollworms on the increase throughout the county. Some Lygus are present also. Bollworms are on the increase in Pima County, but control measures to date have been chiefly for Lygus. Verticillium wilt has shown up in the Sahuarita district.

Maricopa County insect activity has increased tremendously in all areas during the past week, and an estimated 35,000 acres were dusted or sprayed. According to County Agent Carter, leaf perforators, loopers, Lygus bollworms and stink bugs constitute the principal threat, in that order. Other pests include spider mites, armyworms, woolly worms and leaf rollers.—J. N. Roney.

Armyworm Damage Lessens in Missouri

COLUMBIA, MO. (Aug. 17)—Damage from fall armyworms in the central and northern areas of the state seems to have slowed a bit during the week, but there is a good possibility it will pick up again. We seem to be somewhat between broods on the insect at the present time, and there is a good possibility at least that sorghums could be hit by the next brood. Heavy numbers continue to damage small corn and small grain sorghums in the southeast area.—Stirling Kyd and George W. Thomas.

Boll Weevil Infestation Serious in Tennessee

KNOXVILLE, TENN. (Aug. 19)—Cotton is maturing rapidly and cutting out in many of the hill fields. Some boll rot is being found all over the area. High winds and rain have blown cotton over in many rank fields, making insect control more difficult.

Conditions remain ideal for further boll weevil buildup and the situation is serious. Older fields supporting heavy populations are cutting out and heavy migration is resulting. Considerable damage is being done to older bolls in many of the southern counties.

Several heavy infestations have been found in Lake, Obion and Dyer counties. These counties usually have practically no weevils but some weevils overwintered in certain sections of these counties. Most of these infestations are light but some need control at this time. More weevils will be showing up in this section as they will be moving to the north.

The heaviest field found was at Lasiter's Corner in Obion County. Evidently the weevils overwintered along the hills bordering the delta section. The infestations are still not general in these areas but careful observations should be made by the growers to detect the migrating weevils as they come into the late cotton. The average per cent square infestation this week was 44% and was 30% at this time last week. The average per cent punctured squares in the southern counties was 60% and was 43% a week ago.

Large boll worms are causing considerable boll injury with smaller worms infesting blooms and squares. Control is needed in many fields. The infestations are general. Plant bugs are increasing with some damage in rank cotton.

Aphids are still increasing all over the area. Control is being carried out in many fields. The cotton leaf worm is showing up in small numbers in the southern counties.—R. P. Mullett.

Spotted Alfalfa Aphids Numerous in Kansas

MANHATTAN, KANSAS (Aug. 12-17)—Spotted alfalfa aphids can be found in quite large numbers on the alfalfa that was not destroyed by garden webworms during the past two weeks. In south central Kansas the spotted alfalfa aphids are as numerous as 250 to 1,200 per sweep of the insect net. In north central Kansas the aphids are present in fields and may be a threat to fall seeded alfalfa.

Moths of the garden webworm are still abundant in alfalfa fields and weedy margins. The fields examined in central and southern Kansas show few feeding larvae at the present time. This insect can produce more generations this fall.

The first of the second generation lesser migratory grasshoppers was found in Barton County this week. These grasshoppers will be large enough to damage fall sown wheat and alfalfa this fall. Grasshoppers in the flint hills are not as numerous as a year ago.

Counts of corn earworm in sorghum heads have not shown counts that would cause serious damages. Some counts of 20% of the heads infested with one worm per head were found this week. Fall armyworms continue to feed on the leaves of small sorghum plants that probably will not head before frost.—David L. Matthew and Dell E. Gates.

Maryland Reports Field, Vegetable Pests

COLLEGE PARK, MD. (Aug. 16) —Potato leafhoppers averaged from 2 to 23 per sweep on alfalfa in Montgomery and Frederick counties. Other pests found on alfalfa include tarnished plant bugs, green cloverworms, alfalfa caterpillars and grasshoppers.

Infestations of second generation corn borers are generally light. In one late sweet corn field in Frederick County we counted 16 egg masses per 100 plants. Corn earworm is expected to increase in late sweet corn. Last week 47% of the ears at a cannery in Frederick were damaged by earworm. Corn leaf aphids have injured the tassels and top leaves of field and sweet corn in most sections although predators including lady bird beetles are active. Fall armyworms continue to damage late corn over the state.

Damage to tomato foliage by green cloverworms was observed in Worcester County. Hornworm eggs and larvae are increasing on tomatoes in most sections. We are expecting corn earworms to be abundant in late beans.

Second brood hornworms are now active on tobacco and will no doubt increase. Green cloverworms continue to feed on soybeans on the Shore, although some of the older worms are beginning to pupate. Spider mites are giving trouble on soybeans, particularly in Wicomico, Talbot, Dorchester and Queen Anne's counties.—Theo. L. Bissell and Wallace C. Harding, Jr.

Insects Trim Yields In New Mexico Area

DEMING, N.M.—After a summer free from cotton insects, the recent rains have brought out hordes of leaf worms, boll worms and cabbage loopers in this area. In some fields the build-up of insects occurred before farmers were ready for poisoning, and some permanent damage has been reported.

The infestation came a few days ahead of schedule, and many farmers who started poisoning late had trouble in halting the insects. Walter Donaldson, who is president of the New Mexico Agricultural Improvement Assn., has suffered a 30% loss on a large field of pinto beans because he waited too long to start dusting.

Ordinarily the Deming area makes higher cotton yields than any section of the state, if not the entire Southwest. Three-bales-to-the-acre are not at all uncommon, and the county average is about two and a half bales. This year insect damage will lower the yield by 10 to 20%.

Corn Borer Warning In South Dakota

BROOKINGS, S.D. (Aug. 19)—European corn borer egg mass count is increasing for the second brood. It is very difficult to time a single treatment for control of second brood. Time will probably be anywhere from now until the end of August. Application will pay when 100 egg masses are found per 100 plants.

An adult grasshopper survey is underway. Counts up to 25 per square yard are still present in the southeast. They are moving into corn.—John A. Lofgren.

Fall Armyworm Abundant in Illinois

URBANA, ILL. (Aug. 15)—Population of fall armyworm on late maturing field corn continues high. From 10 to 80% of the plants are damaged in fields not yet tasselled. Only an occasional dead worm has been found, indicating that parasites and/or disease may not begin to reduce populations for some time. In most areas, all stages of this insect can be found. This situation will likely continue for some time. Generally, the nearer the corn is to tassel emergence, the more mature the worms.

Pupation of first generation corn borer is about complete. In central and southwestern Illinois pupation approached 100%, while in northern Illinois, (north of highway 6) only about 70-80% of the first generation borers pupated. Emergence of moths is nearly complete south of highway 6, while north of this line, emergence ranges from 30 to 75%. Egg hatch is just beginning in this northern area. Egg counts remain low in most areas, due to the large number of late maturing fields available to the moths.

Garden webworm is abundant in many alfalfa fields throughout western and southern Illinois and may well continue to be a pest the remainder of the season. Green cloverworm is present in many soybean fields throughout the southern two-thirds of the state. Most of the worms are newly hatched, ¼ to ½ inch long, indicating that populations could increase rapidly in the next week or two. The bean leaf beetle is also abundant in many soybean fields.

A new generation of chinch bugs is now appearing and infestations have been noted in inbred seed corn fields as well as weak or thin stands of field corn. Spotted alfalfa aphid can now be found commonly in alfalfa fields in southern Illinois and up the Mississippi valley as far as Hancock County.

Curlytop Outbreak Reported in Idaho

TWIN FALLS, IDAHO—A severe outbreak of curlytop, a disease of broadleaf farm crops, has been sweeping the Magic Valley area, according to Dr. Harry Fenwick, extension service plant pathologist, University of Idaho. Dr. Fenwick who came here to confer with Warren Daigh, county agent, said this was the worst infestation in nine years.

The disease is caused by a beet leafhopper commonly known as the white fly. Crops affected the most have been tomatoes, peppers, beans and other broadleaf plants. Dr. Fenwick said the worst infestations were in the Castleford and Buhl areas, but that some fields near Twin Falls had a 100% infestation.

Corn Borer Development Continues in Minnesota

ST. PAUL—Corn borer egg mass counts per 100 plants in mid-August in Minnesota averaged 18 with a 68 maximum in the southwestern part of the state and averaged 9 with a maximum of 56 in the central part.

With a rather steady pace of corn borer development, moth emergence and egg laying are expected to continue over a prolonged period. Eggs laid up to about the first week of September will be of consequence with reference to corn injury because of the lateness of the corn crop. Stalk breakage as a result of first generation borer injury has been noted generally. High winds will accentuate this damage.

Observations made in Dakota, Rice, Goodhue, Wabasha, Olmsted, Dodge, Mower and Fillmore counties indicate that a large percentage of grasshoppers are still in nymphal or immature stages. In Dakota, Rice, Goodhue and Wabasha counties up to 12% adults were noted; further south 3 to 5% adult or winged hoppers were observed. In one alfalfa field near Pratt (Steele County) hoppers were approximately 50% adults. Population in this field ranged from 10 to 40 hoppers per square yard with counts up to 70 per square yard in uncut strips.

Grasshopper populations are quite spotty—extremely heavy infestations are common and may be found adjacent to area having non-economic infestation. Blister beetles observed numerous in Renville, Chippewa, Kandiyohi and Meeker counties in alfalfa. Loopers were observed in Renville and Chippewa counties on alfalfa.

European Corn Borer Active in Iowa Fields

AMES, IOWA (Aug. 17) — There were 1,300 corn borer moths caught in the light trap at the European corn borer laboratory on the night of Aug. 10. Catches since that time have been above 200 moths each night. Egg masses continue to be laid on both early and late corn with late planted fields receiving the majority of eggs.

A late planting of sweet corn near Grimes had 120 unhatched egg masses per 100 plants on Aug. 14. Counts of sweet corn in Winnebago County also showed more than 100 egg masses per 100 plants. Seed corn fields in Wright County had counts of 50 unhatched egg masses per 100 plants on early corn, 120 on a midseason field and in a June planting counts were as high as 208 unhatched masses per 100 plants. Fourth instar second brood borers were found in field corn at Ankeny, Iowa, this past week.

Webworms have been reported

ing from alfalfa into soybeans in atur County and into glads in County. Webworms and grass- pers are threatening new seed- especially in dry areas.

rasshoppers are moving out of dows and pastures into grain sor- m and corn. Yellow clover aphid been reported as damaging new lings of red clover. These are ll greenish-yellow aphids. They something like spotted alfalfa ids but feed on red clover.—Earle Raun.

l Weevil Infestation avy in Mississippi

TATE COLLEGE, MISS. — Boll vil infestation is heavy in many as of Mississippi. Lice and red lers have also been found on some ton.

Quitman County farmers are ving to carry on a complete poi- ning program to control cotton sects, stated L. V. Henson, county ent of Marks. Lice and red spider e being found in a number of lds.

rentiss County farmers are bat- g with migrating boll weevils, to- her with infestations of aphids and der mites, in cotton, reported W. Smith, county agent, Booneville. lworms are attacking late corn, worms are damaging soybeans. all armyworms are giving trouble widely scattered areas of Amite nty. The Monroe County cotton p is being damaged by a heavy in- tation of boll weevils, stated C. F. ndle, county agent, Aberdeen. Boll evils are also migrating in Itawam- County, said Henry L. Holland, nty agent, Fulton. Worms are at- king some of the late corn.

o Colorado Counties t by Alfalfa Aphid

T. COLLINS, COL.—Two Colora- border counties are carrying the nt of the spotted alfalfa aphid in- sion.

Prowers County in the southeast Montezuma County in the south- st have been hit hard by this crop- maging pest, according to the Aug. report of the Colorado Insect De- tion Committee. Other counties re- rt relatively light infestations.

The aphids appear to be coming o eastern Colorado from Kansas the Arkansas River Valley. At the te line, field surveys on Aug. 10 vealed an average of 10,000 insects r 100 sweeps. Farther into Prow- s County the count was 5,000 and e average in Bent County was 800. Continuing up the valley, Otero unty reported 50 per 100 sweeps, d in Pueblo County the total was ly 12. Surveys in other eastern lorado counties showed 70 in owa, 60 in Cheyenne and a mere 4 Crowley.

In western Colorado, populations f the spotted alfalfa aphid in Montezuma County were described s high. The average in Mesa Coun- y was 20 per 100 sweeps, and Gar- ield County reported 8.

No evidence of the insect was dis- vered in El Paso, Douglas, Weld, arimer, Delta or Montrose counties. Another damaging pest is the sugar et webworm, which has been found large numbers in Weld County. On ug. 2 the light trap at Greeley took ore than 7,000 moths. In Boulder unty, however, the Longmont light ap attracted only 200 moths.

Very high numbers of the army- orm have been taken in light traps Rocky Ford in Otero County the st two weeks, according to the mmittee.

Infestation of grasshoppers in agri- ltural areas has not been as large expected, but this pest has caused nsiderable damage to flower and getable gardens in cities, especially enver, Greeley, Boulder and Ft. Col- ns.

Emergence of the corn earworm oth has tapered off in Otero Coun- ty after much activity the last week of July. In Las Animas County, egg laying has been observed in corn fields at the rate of 5 to 6 per ear. At Lamar (Prowers County) the rate is 2 to 3 per ear. Montrose and Delta counties report heavy infestations of the corn earworm. Populations of onion thrips are very high in Pueblo and Otero counties.

Vegetable Pests Busy in New Jersey

NEW BRUNSWICK, N.J. — Mites continue damaging tomato plantings. Hornworms and fruitworms are active on tomatoes in some areas. Earworm eggs are numerous on sweet corn. Cabbage aphids are bad in the Cape May area.

Third brood codling moth apparently is appearing (Aug. 16) in southern New Jersey and Delaware.

European corn borer eggs are hatching (Aug. 13) in southern New Jersey. Red spider mites are causing defoliation of soybeans in widespread areas. Green clover worm is doing some chewing up of leaves as is corn earworm.—Spencer H. Davis, Jr., Leland G. Merrill, Jr., and Robert E. Treece.

Root Borer Blamed For Clover Failure

BLACKSBURG, VA.—Farmers who have been blaming diseases for causing their red clover stands to die out may have been wrong, according to A. M. Woodside and E. C. Turner, Jr., of the Virginia Polytechnic Institute Agricultural Experiment Station's entomology staff. They say recent investigations have shown that heavy infestations of the clover root borer are common in the northern part of Virginia.

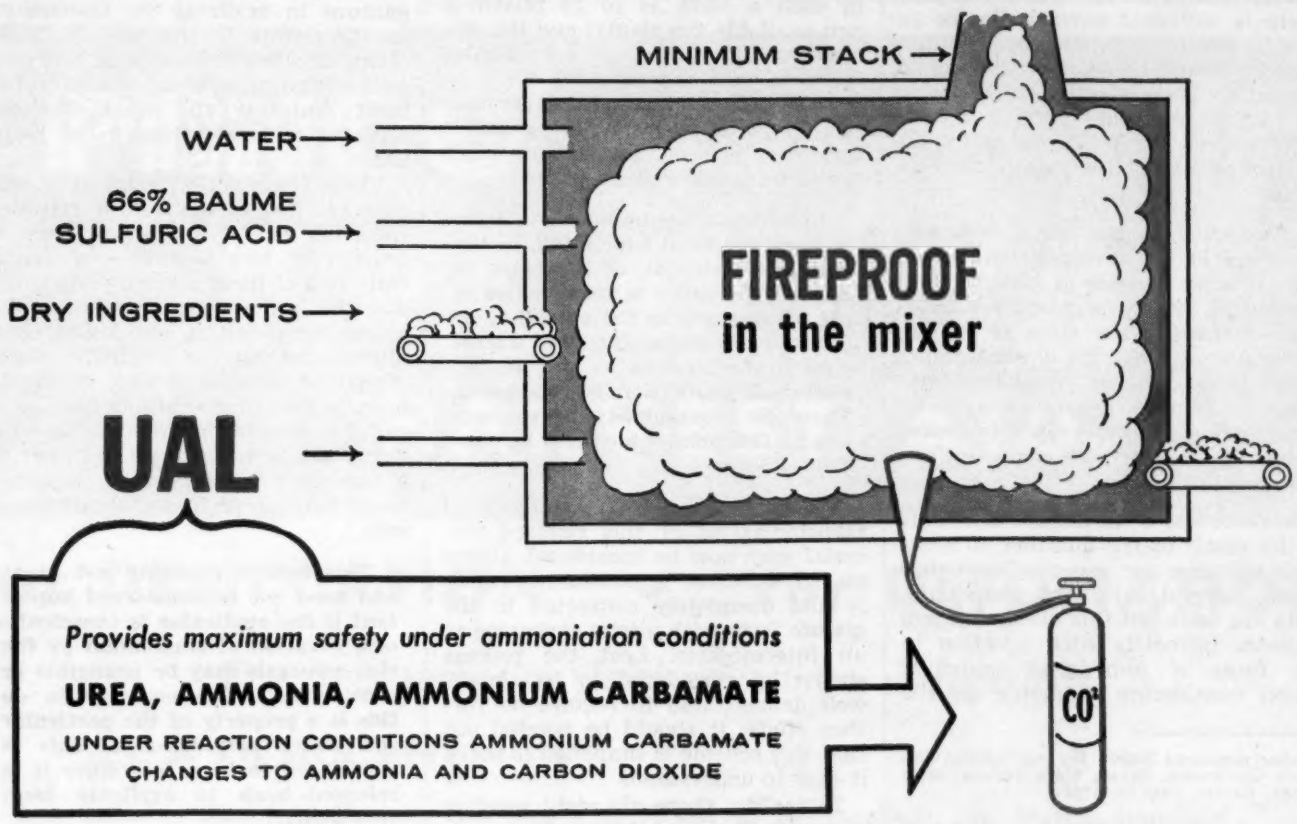
Clover plants heavily infested by this insect are much less likely to survive the second summer than are uninfested ones.

Control of the clover root borer, accompanied by increases of as much as 1,500 lb. of cured hay per acre and greater survival of clover plants, has been obtained in station tests by applying insecticides on the surface of the soil.

Aldrin, dieldrin, and heptachlor at 1 pound per acre, BHC at 1 pound of the gamma isomer, and chlordane at 2.5 pounds have given good control for one season. Treatments with heptachlor, BHC, and chlordane were about equally effective whether applied in the fall, winter or spring. In general, granulated formulations have been most effective, followed by dusts, then sprays, according to the researchers.

$50 AN ACRE SAVING

STILLWATER, OKLA.—As much as $50 an acre in hand labor was saved by the use of 2,4-D sprays on strawberries for weed control last year, according to the Oklahoma Agricultural Experiment Station. Fruit size and yield were not affected, the researchers report.



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SPECIALIST EXPLAINS . . .

Biological Transformations Of Ammonia in Soils

By Dr. Donald D. Johnson*

Associate Professor of Soils

Colorado State University

Among those elements necessary for the growth of the higher plant, there are several whose availability is largely controlled by the activity of the microbial population of the soil. Carbon and nitrogen are subject to almost complete control by this population and phosphorus and sulfur are subjected to considerable modification.

The immobilization and release of carbon in the decomposition process are seldom considered as having any effect on the growth of the higher plant—it is generally considered that there is sufficient carbon dioxide in the air—and yet if the decomposition process should cease, that is organic carbon no longer be mineralized, life on this planet would grind to a halt within a very few years. Microbial control of nitrogen is almost as complete.

Ammonia is the most reduced member of the nitrogen family, it is normally present in soils to the extent of but a few parts per million—generally less than 10 lb. an acre furrow slice. Its normal presence is due to the breakdown of organic nitrogen compounds such as proteins or amino acids to inorganic form—a process spoken of as "mineralization."

Another source of ammonia in soils is the result of the addition of fertilizer nitrogen for use by the higher plant. Several forms of ammonium salts are used, but this discussion will consider primarily such addition in the form of anhydrous ammonia. When considering ammonia in the soil, which results from fertilizer application, one fact stands out very clearly — the concentrations present are far greater than those occurring under natural conditions. Hundreds of pounds of ammonia an acre now appear in the volume of soil about the point of application where less than ten had ever appeared before. This higher concentration modifies the normal soil processes as shall be pointed out throughout this discussion.

Immediately upon application, several strictly chemical processes occur —the liquid ammonia reacts with water or acid clay to give the positively charged ammonium form; the ammonium ion may become irreversibly fixed to clay or to organic matter in such a form as to be relatively non-available for plants; and the ammonium ion undergoes considerable reaction with the colloidal exchange surfaces of the clay and organic matter. It is in such an exchangeable form that most of the reactions which are to be considered are based.

In addition, ammonium is a highly basic material which will, in the immediate vicinity of the point of application, serve to cause a rise in pH, a decrease in the solubility of calcium and magnesium, and a temporary sterilization as far as the microbial population is concerned. There is a possibility of gaseous loss at this point which will be considered later.

The main stream of the biological transformation of this reduced material may now be considered. Under most conditions, ammonium is rapidly and completely converted to the nitrate form with nitrite appearing as an intermediate. Lest the process shown be considered to be simple, well defined, and to require no further study, it should be pointed out that this scheme is simplified to make it easy to understand.

In reality, there are eight possible nitrogen compounds between ammonium and nitrate, nitrite is but one of these and any or all of the others may be involved in the process. Nitrate is then the end process of a complex biological transformation from which certain bacteria are able to obtain energy and which with carbon dioxide suffices to meet most of their metabolic needs. These organisms, while composed to a large degree of carbon in organic form, are unable to use organic carbon as a source of energy as do most of the other organisms on the planet—including the metabolically not so unique human being.

The process normally proceeds to completion so that nitrate is the most common inorganic nitrogen compound present in soil. There may be some roadblocks in the path of the process, however. If the soil is too acidic, too basic, too wet, or too dry, the ammonium will not be changed to nitrite. If the soil has a high content of lime, then the pH after application will be quite high and nitrite may tend to accumulate. This accumulation may be of some concern in calcareous soils since nitrite is quite toxic to plants in high concentration.

All three of these forms of mineral nitrogen are available for the use of plants. All higher plants and many microorganisms will use ammonium. All higher plants, with rice and possibly some other aquatic plant as exceptions, and some microorganisms will use nitrate. Some higher plants will use nitrite nitrogen provided it is present in very low concentration. The bulk of the nitrogen nutrition of the higher plant is taken care of by nitrate—not because it is the best or the only form of nitrogen which the plant can use but quite simply because it is present—the end product of a biological transformation.

Of course, the uptake of any of these forms by the higher plant may be blocked. The primary blockage of uptake occurs when there is an excess of energy material—crop residues—for use by the large microbial population. Under such conditions, the higher plant will come out second best in competition for the mineral nitrogen and growth may be restricted to the extent that the microbes compete for the available nitrogen.

It is interesting to consider the fate of these mineral nitrogen compounds after uptake by the higher plant—or by the microorganism for that matter. Ammonia is directly coupled with a carbon fragment to form an amino acid. These amino acids are then combined into protein. In the case of nitrate, the nitrate ion must be reduced to ammonium, a process requiring a number of steps and the expenditure by the plant of the same amount of energy as was gained by the nitrifying organisms in oxidizing the ammonium ion to nitrate in the soil. It would seem, all other factors being accounted for, that ammonium would be the most desirable and least wasteful form of mineral nitrogen for plant use.

There is always a good deal of concern relative to the loss of nitrogen from the soil. A number of possible sources of loss will be considered. Only two of these involve ammonium directly, but since ammonium is the source from which the losses from nitrite and nitrate originate, these should be considered also. Ammonia may be lost to the atmosphere as a gas if it does not react with the soil; if the soil is too wet or too dry; or if the pH after application is above 9—as may occur in some calcareous soils.

This loss is probably not great and need not be considered important if the applicator is conscientious. Fixation of ammonium by the clay minerals may be negligible or considerable. The capacity to do this is a property of the particular soil under consideration. This is considered to be a loss since it is released back to available form very slowly.

The remainder of the losses is associated directly or indirectly with nitrate. In this form the inorganic nitrogen is soluble and is not held by the colloidal material in the soil and hence is subject to leaching to the extent that water passes through and out of the root zone. Nitrate follows a similar path. This is probably the major source of loss in the humid region and in the arid regions where irrigation is practiced, but practiced badly.

The last form of loss is in the form of nitrogen gas or the gaseous oxides of nitrogen. This process is carried out by microorganisms and is favored by poor aeration and a large supply of available carbonaceous material. It has, however, been shown to occur under those soil conditions which are favorable to plant growth. The magnitude of this loss is not known for sure, but the evidence is that it is considerable.

In summary, it is easy to see that the biological transformations of ammonia in soils are many and varied. The scheme presented will be recognized as a small part of the much larger and more complex nitrogen cycle in nature. By and large man does little more than add a component here and there to the system and good management is largely defined on the basis of living with and cooperating with the processes rather than attempting to modify them.

If we are to modify such processes to suit our needs, then we need considerable basic research—fundamental studies in which no objective other than a desire to know more of processes involved and the factors which control them are needed. The day may come when our practical research will come to a halt because we have forgotten or ignored the need for the presently-impractical fundamental research.

As the leader of the successful Mt. Everest expedition remarked when asked why they had expended so much time and effort on a mountain peak—"Because it is there." This same reasoning should be sufficient justification for an assault on the biological transformations of ammonia in soils.

* Paper presented before the Agricultural Ammonia Conference, Kansas State College, Manhattan, Kansas, July 12, 1957.

NITROGEN STUDIES
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SPENCER GRANT—Ronald Schultz (left), graduate student from Billings, Okla., and Arlan Woltemath, agronomist, Spencer Chemical Co., are shown at the 100-acre site being used in nitrogen fertilization experiments for improved pastures at the Southeastern Oklahoma Pasture Fertility Station located near Coalgate. Mr. Schultz was named outstanding graduating senior majoring in soils at Oklahoma State University and has been appointed to the Spencer graduate fellowship for work on this project. The research work will be carried out under the direction of Dr. J. Q. Lynd, associate professor of agronomy, Oklahoma State University. The Spencer grant is for $2,000 annually for five years.

Program Set for Fertilizer Control Officials' Meeting

WASHINGTON—The program for the 11th annual convention of the Association of American Fertilizer Control Officials has been announced by B. D. Cloaninger, Clemson, S.C., secretary-treasurer. The convention will be held at the Shoreham Hotel here Oct. 18.

The morning session will get under way with a report by Mr. Cloaninger and the presidential address by J. D. Patterson, Salem, Ore. Speakers and topics on the morning session also will include:

Paul T. Truitt, executive vice president, National Plant Food Institute, Washington, "Needs and Opportunities of the Fertilizer Industry;" Sigurd Anderson, commissioner of the Federal Trade Commission, Washington, "Some Observations in Connection with the Advertising and Sale of Fertilizers;" Dr. Paul C. Marth, senior physiologist, U.S. Department of Agriculture, Beltsville, Md., "Plant Hormones and Growth Stimulants," and Dr. R. P. Thomas, technical service supervisor, Plant Food Division, International Minerals & Chemical Corp., Chicago, "Commercial Aspects of Minor Elements in Fertilizer."

Dr. J. Richard Adams, senior chemist, Fertilizer & Lime Section, USDA, Beltsville, Md., will lead off the afternoon session with a talk on liquid commercial fertilizers. The remainder of the afternoon program will consist of the following reports of investigators:

General terms, M. H. Snyder, Charleston, W. Va.; nitrogen products (organic), M. P. Etheredge, State College, Miss; nitrogen products (inorganic), J. W. Kuzmeski, Amherst, Mass.; phosphorus, J. F. Fudge, College Station, Texas; potassium, F. W. Quackenbush, Lafayette, Ind.; calcium, magnesium and manganese, J. B. Smith, Kingston, R.I.; boron, R. C. Berry, Richmond, Va.; zinc and copper, H. J. Webb, Clemson, S.C.; sampling bulk fertilizer, M. B. Rowe, Richmond, Va.; registration forms, George Laramie, Concord, N.H.; publications and tonnage reports, Henry DeSalvo, Little Rock, Ark.; pesticides in fertilizers, J. C. Jones, Richmond, Va.; specimen labels, W. J. Huffman, Jackson, Miss., and specialty fertilizers, E. A. Epps, Jr., Baton Rouge, La.

A meeting of the States Relations Committee of the association will be held at 8 p.m. Oct. 17.

South Carolina Agents Checking Resistance

ANDERSON, S.C.—An effort is being made to determine if boll weevils in South Carolina have become resistant to recommended insecticides.

According to J. H. Hopkins, Anderson County agent, fields in this area which have been checked indicate the weevils were killed "when the materials were applied properly."

In view of a number of reports through the South that weevils are becoming resistant to certain poisons which were effective in the past, South Carolina county agents and agricultural experiment station personnel have been watching the situation closely, it was reported.

RICULTURAL COMMUNICA-ONS AWARD — Lowell Brandner, ricultural editor, Kansas State Col-e, Manhattan, is the winner of the erican Association of Agricultural llege Editors-National Plant Food titute "Agricultural Communica-ns Award," which was presented at association's recent annual meet-held at Colorado State University, rt Collins. The award, consisting of scroll and a check for $500 was sented by Louis H. Wilson (left), retary and director of information the Institute and was accepted, behalf of Mr. Brandner, by Lisle ngsdorf (right), extension editor, nsas State College.

ef Cattle-Grassland y Set in Minnesota

ST. PAUL—The fifth annual Beef ttle-Grassland Field Day at the iversity of Minnesota's Rosemount ricultural Experiment Station will held Sept. 19. Topics at the field y will include weekly vs. daily rota-nal grazing for beef cattle, pasture rtility and beef production, bloat re-arch, trials with stilbestrol and ramycin, stilbestrol and Dynafac ntering calves on silage and beef ttle prospects for 1958.

"Pasture fertility and beef produc-n" will be the title for a report by M. Burson, University of Minneso-soils scientist. He will discuss fer-ity trials and whether fertilizing stures pays off in increased gains, s bloat or in other benefits for beef ttle.

The Beef-Grassland project was arted in 1952. Since then, the live-ock scientists, soils men and agron-nists doing the work have made a mber of findings important to beef oducers.

In 1955, for example, gains of 222.2 of beef per acre were made on rtilized pastures grazed in rotation r 118 days. On unfertilized pastures e gains were 161.1 lb. Researchers so found that dry lot feeding fol-wing summer pasturing raised car-ss grade, increased dressing per-ntage, selling price per hundred and rgin per steer over feed cost, in portion to the length of time the imals were fed in the dry lot up to 0 days.

On fertilized pastures, the trials ve shown, the cattle will graze pping spots more uniformly than unfertilized areas. Also, fertilizing nds to boost the grasses in the pas-re mixture. And keeping the grasses to at least 50% of the mixture ems to help prevent bloat.

DUSTER INJURED

SACRAMENTO—Crop duster mes Millay of Davis, Cal., suffered nor injuries but was doused in osphate insecticide when his spray ane struck a tree and crashed near Winters, Cal. Employed by the Med-k Crop Dusting Service, Mr. Millay a veteran pilot. He freed himself m the wreckage as the liquid pour-on him from a tank on the plane, n to a nearby irrigation ditch and shed off the poison. Harold Med-k, his employer, who witnessed the sh then rushed him to the Davis edical Center for treatment.

National Fertilizer Solutions Assn. Plans Cincinnati Convention

CINCINNATI — Several panel discussions are included in the program for the 1957 convention of the National Fertilizer Solutions Assn., which will be held Nov. 17-19 at the Netherland-Hilton Hotel here, according to Muriel F. Collie, executive secretary of the association.

Three members of the Ohio University faculty will staff a panel on "Essentials to Success." They are Dr. John K. Pfahl who will talk on sales ethics, Dr. John Sharp, who will discuss economics, and Dr. Gordon Ryder who will speak about agronomy.

Dr. Edwin F. Alder, plant physiologist, Lilly Research Laboratories, Greenfield, Ind., will be a member of a panel on "Additives to Fertilizer Solutions." His topic will be the new hormones and gibberellic acid. Two other speakers, who have not been named, will discuss the subjects of pesticides and trace elements.

Howard Lathrope, Nitrogen Division, Allied Chemical & Dye Corp., will conduct a presentation on local consumer meetings. Mack Sauer, editor of the Leesburg (Ohio) Press, will be banquet speaker the evening of Nov. 19.

Another panel session on "Material Supply Outlet" will be held, and speakers to cover nitrogen, phosphoric acid and potash, are yet to be announced.

A general session on standards will be held the morning of Nov. 17. The session is being planned by the association's Standards Committee, of which Roy F. Broyhill, the Broyhill Co., Dakota City, Neb., is chairman. Other committee members are W. Harold Schelm, Schelm Brothers, Inc., Peoria, Ill., and Donald D. Weber, Spraying Systems Co., Bellwood, Ill.

E. E. Crouse, United States Liquid Fertilizer Corp., Indianapolis, president of the association, has called a meeting of the board of directors for the evening of Nov. 17.

The usual trade show is being replaced this year by supplier conference rooms.

Ernest M. Harper, Nitrogen Division, Allied Chemical & Dye Corp., Indianapolis, is chairman of the Convention Planning Committee. Other members are William G. Calvert, Lafayette Farm Supply, Inc., Lexington, Mo.; Ralph Helmstatter, H&R Agricultural Service, Norwalk, Ohio; John Ackley, John Deere Planter Works, Moline, Ill.; O. L. Ohnstad, Ohio Fertilizer, Inc., South Solon, Ohio, and Mr. Crouse.

SOUTH CAROLINA PESTS

ORANGEBURG, S.C.—Velvet bean caterpillars and cabbage loopers are showing up in soybean fields of Orangeburg County, South Carolina, J. C. King, county agent, has reported. Damage has been negligible so far, but control measures are urged when farmers find three to five caterpillars per foot of bean row.

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PENCO Endothal Harvest Aid has been found to be excellent for drying standing seed crops in the field. It acts as a chemical "frost", stops plant growth, dries out the plant and seed. It allows direct combining of crops. Its application has been known to increase yield, reduce seed loss and save time ordinarily consumed in windrowing and handling. It is a liquid spray formulation . . . for application by ground equipment or airplane.

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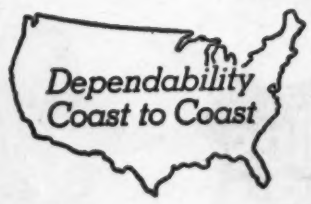
Endothal is the accepted generic name for 3, 6-endoxohexahydrophthalic acid. The manufacture and use of Endothal products are covered by one or more of the following U.S. patents: 2,550,494; 2,576,080; 2,576,081; 2,576,083; other patents pending.



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CANADIAN POTASH

(Continued from page 1)

was stated that the occurrence and character of the seams are almost horizontal and can be mined in a manner similar to those at Carlsbad.

"Sylvite," a crude potassium chloride, appears to prevail in the Canadian deposits. However, the occurrence of "carnalite," a mineral containing both potassium chloride and magnesium chloride, also has been reported. The ore also contains bromine. One company is undertaking a program of market research and development on magnesium products and bromine as by-products of potash production.

When potash production starts in Saskatchewan, it will mark a revival of one of Canada's oldest industries. From 1800 to 1870 potash was recovered from wood ashes, largely for export. With the development of mineral deposits in Europe, Canadian output ceased. The new industry presently taking shape in Saskatchewan will have very little in common with its predecessor.

Recently, Canada has been importing approximately 150,000 tons a year of potash materials for fertilizer purposes, the principal use. Development of a domestic industry will depend to a large extent on finding export markets, however.

Prospective markets are the U.S. and Far Eastern countries, where consumption is growing. The U.S. with its own expanding industry may in one sense appear to be an unreceptive outlet for Canadian exports. However, since U.S. producers are entering the Canadian field and because of the predominant centralization of U.S. production in New Mexico, Canadian potash may possess a competitive advantage in many U.S. markets.

Canadian government officials anticipate that potash production may eventually attain a value of 50 to 60 million dollars and provide direct or indirect employment for 12,000 persons. If the industry attains this goal, it will become an important activity in Saskatchewan. In comparison, metallic mineral production in the province was valued at about $56 million and fuel output at $22 million in 1955.

ARKANSAS APPOINTMENTS

FAYETTEVILLE, ARK.—Appointments of Howard C. Wall as research assistant in entomology and Garlan D. Reading as research assistant in plant pathology have been announced by the University of Arkansas Agricultural Experiment Station. Mr. Wall will help with studies on the corn borer and spotted alfalfa aphid, and Mr. Reading will assist with work on fungicides.

Acreage Regulation Of 1958 Soil Bank Modified by USDA

WASHINGTON—Modification o 1958 soil bank acreage regulation to remove the provision for a civi penalty against participating farmer who exceed the "permitted acreage for harvest of soil bank base crop on their farms has been announced by the U.S. Department of Agriculture.

Under the 1958 acreage reserve program, a farm soil bank "base" will be established for participating farms. In general, this base is the average number of acres harvested in 1956 and 1957, as determined by the farmer's county agricultural stabilization and conservation committee. In an acreage reserve agreement, a farmer agrees not to harvest more acres than this "base", less any acreage placed in the soil bank. This is his "permitted acreage" for harvest.

The 1958 acreage reserve regulations as originally announced provided that the harvest of more than this "permitted acreage" would subject the farmer to both a civil penalty of 50% of the payment which would have been made for full compliance with the acreage reserve agreement, and also the loss of the payment itself. Under the modification farmers who do not comply with the "permitted acreage" provision will still forfeit the entire payment but no civil penalty will apply.

USDA officials emphasize that the "soil bank base" provision continues in full effect, as a limitation upon total production, except for the withdrawal of the "double penalty" provision.

Both a civil penalty and loss of payment will continue to apply for any farmer who harvests a crop or permits livestock to graze on land designated for the acreage reserve or who harvests more of the acreage reserve crop than his farm acreage allotment less the acreage in the reserve.

Dow Announces New Seal For Methyl Bromide Cans

MIDLAND, MICH.—Dow Chemical Co. has announced a new method for sealing methyl bromide cans which the firm says virtually eliminates the possibility of leaks.

The new method has been under test for two years, J. L. Maxwell, industrial fumigants sales manager for Dow, said.

In September, 1955, 960 cans sealed with the new device were shipped to Brazil and returned to the United States. From there the shipment was routed to Dow stations in Florida, Texas, Mississippi and California and returned to the Dow plant in Midland, Mich. for examination. Only two cans—which had been damaged in shipment—showed any weight loss and the remaining 958 cans are still in perfect condition after 23 months according to Mr. Maxwell. Millions of cans with the new seal have been moved in the past 18 months without a single customer complaint, he said.

"Effectiveness of the new seal will permit overseas shipments to be stowed below deck, saving shippers freight costs," Mr. Maxwell said. "The new seal also gives methyl bromide a shelf life of several years. The new seal permits advance packing and warehousing in preparation for prompt shipment in peak seasons."

The new method is also used for sealing Dowfume MC-2 and Profume cans which contain chloropicrin as a odorizing agent.

FIRST PH.D. IN ENTOMOLOGY

AUBURN, ALA.—Hamlin H. Tippins was awarded the first doctoral degree in entomology by Alabama Polytechnic Institute at the graduation exercises here Aug. 24. Mr. Tippins, an API graduate in agriculture, received his B.S. degree in 1942 and his master's in 1953.

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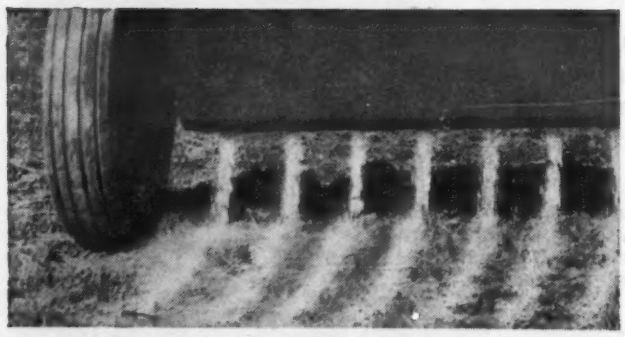
A supporting advertising campaign in farm papers will announce this new high nitrogen fertilizer to your customers and prospects. It will make your overall sales job easier because, in addition to stressing straight nitrogen, this campaign helps you sell mixed goods.



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TAMPA, FLA.—*3737 Neptune St.*
TULSA, OKLA.—*1708 Utica Square*
WICHITA, KAN.—*501 KFH Building*

Special Merchandising Section

Better Selling

Marketing News and Features

Service and Suggestions Sell Agricultural Chemicals, Says California Nursery Operator

By GODFREY LEHMAN

In nine years the Cottage Nursery Co., 2025 Solano Ave., Vallejo, Cal., has become a sizable retailer of fertilizers, insecticides and related agricultural chemicals through no more magic a formula than the use of well known merchandising techniques.

Approximately 25% of a varied nursery supply business consists of farm chemicals, says owner Hollis Gray. And the proportion remains about the same over the years, growing by significant amounts as total business grows.

Located in a redwood designed cottage set back from a thoroughfare, the nursery maintains extensive sheds and greenhouses to stock all kinds of gardening needs. And spotted throughout this entire property at strategic points are mass displays of chemicals which relate to other goods being shown.

Hollis Gray

These mass displays are highly instrumental in promoting sales of all kinds of chemicals, Mr. Gray reports. In the center of the interior portion of the nursery there is usually an attractively grouped showing of weed killers, soil conditioners and similar products. A step display nearer to one side of the store features another line of well established products; in back beside a group of flats are shown types of chemicals that would prove appropriate aids to the development of new flowers.

"We change these displays frequently," Mr. Gray reports. Each season calls for different types of chemicals; the presence of different kinds of insect pests—and the Grays keep up to date on what's invading whose farm or garden—means different insecticides, and thus timely displays of the appropriate chemicals.

These prominent showings have been very effective in promoting extra sales and spontaneous purchases.

But that is not all. In the nursery business, much selling is in reality not selling at all, Mr. Gray says. It is no more than service and suggestion.

For example, a customer buys some flats; Mr. Gray or his salesman says, for example, "When you plant this be sure to use X type of fertilizer for full flowering."

The customer might respond that he has enough of this—but when he gets to the cash register he has thought it out and decides he should buy some more. That is, if he doesn't decide sooner that he needs the chemical for full development of his garden.

Or the salesman might suggest that

(Continued on page 13)

ATTRACTIVE RETAIL HEADQUARTERS—Above is the attractive redwood cottage which is the main retail sales building of Cottage Nursery, Vallejo, Cal.

COMPLETE DISPLAYS—Complete lines of garden, lawn and ranch chemicals are featured by the Cottage Nursery, Vallejo, Cal. Two lines carried by the firm are shown in the mass displays here.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

There is no mysterious element in the success of any farm supply dealer or of any merchant, for that matter, when one studies the methods of profitable retail operations. Usually the rules that a successful dealer uses are the common sense rules which anyone has access to. The difference between the successful and the unsuccessful dealers is that the latter ones do not put all the accepted rules into constant operation.

An Iowa dealer was discussing another retail operation about 40 miles from his town. It had been founded by a man who knew his business and who knew his customers and served them well. He built a tremendous business. When he died, his son took over the business. He did not have the business sense his father had, but he had his father's example to follow.

But he didn't. Within four years he had run down this once successful business to the point where he was forced to sell it for a fraction of its one time worth. The man who bought it at a low price, began to build it up again, and within two years it was once again a pretty good business.

An article in a financial journal takes a "crack" at the owner of a business who spends too much time golfing, fishing and doing other things—except working at his business during working hours. The successful retailer works hard every day—but it pays off for him. He plays during his "after work" hours—as a rule.

Common Pitfall

Let us suppose that a dealer allows his store to become dusty and dirty with debris constantly gathering in the corners. If he is honest with himself he will say, "Yes, I know that this condition is one of neglect, and that customers do not like to patronize a store which looks like this."

The remedy is to clean it up, and keep it clean. Others do it—so can any dealer if he makes up his mind to.

Several farm supply stores which were visited recently were examples of the "spic and span" treatment. Both were well lighted, including the basement stairs. There were no dusty windows or cobwebs.

It requires effort to keep stores looking like that, but it was noticeable that the owners and their employees were proud of the fact that their places were so neat and that they were anxious to keep them that way.

Another dealer acquaintance walks to the door with customers, shakes their hands in farewell, thanks them for their purchases and invites them to come again. This type of personal attention pays off. Customers like to come to such a place to buy.

The successful dealer is the man who takes the time to figure out the time savers, the cost reducers in his business. He studies a work plan, eliminates lost or unnecessary repeat motions, he keeps machinery repaired and operating efficiently, and he watches his expenses. He does all this regularly, because he knows if he

(Continued on page 11)

California Association To Publish Booklet on Range Fertilization

SAN MARINO, CAL.—A new 24-page booklet, Range Fertilization, will soon be in print, and should be available in September through most local fertilizer suppliers in California and other western states, or upon application to the office of the California Fertilizer Assn. at 475 Huntington Drive, San Marino, Cal.

Published by the association's soil improvement committee, it is designed to tell the story of the significant benefits which follow proper fertilization of dry range land, when employed with other approved practices. Its purpose is to give livestock producers correct information on the use of fertilizers as a good management practice for range improvement.

Printed on good quality glossy coated paper, the dimensions will be 5⅜"x8½", or coat pocket size, according to the committee. Sixteen photographs will be incorporated. The text will be brief, and in large type for easy readability. Reports are made of increased meat production per acre; increased forage to the extent that extra hay can be put up; increased forage quality, especially in protein content; and longer grazing season; all through proper fertilization.

The fourteen chapter headings are: You Can Have Earlier Grazing; Increased Palatability Works For You; More Feed From The Same Acres; Reduce Your Labor Costs; Finish Lambs On The Range; Fight Both Drouth And Cold Weather; Improve The Quality Of Your Forage; Save Your Soil And Your Rainfall; Make More Hay; Make Irrigation Pay; Fertilizer Can Carry Over; Three Plant Foods For Your Range; Answers To: How Much? When? Which?; and How To Apply Fertilizer To Rangeland.

"Oh, I don't want this information because I'm planning to go into farming. I'm thinking of buying an African violet."

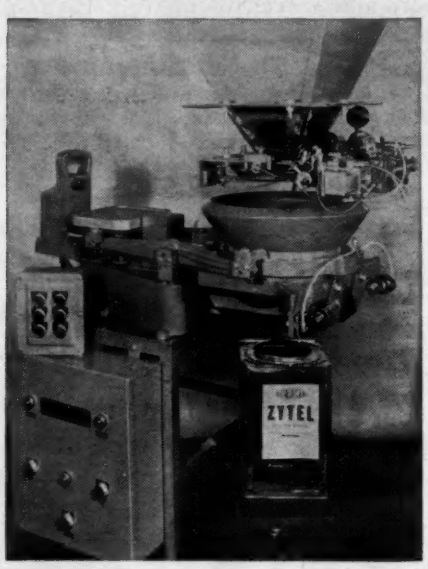
What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 5770—Weighing Machine

A new automatic net weighing machine, designed for use in restricted overhead clearance areas, has been announced by the Exact Weight Scale



Co. The machine consists of an even balance precision industrial scale, an air operated slide valve, a controller and remote control station. The remote control station permits the machine to be operated as a fully automatic or semi-automatic. The weight bucket (on the machine illustrated) is capable of holding 1,500 cu. in. of product. Various sizes of weigh hoppers are available. Secure details by checking No. 5770 on the coupon and mailing it to this publication.

No. 5769—Portable Conveyors

The Chantland Manufacturing Co. announces improvements in three lines of its Elton portable conveyors. The conveyors are now equipped with new lifts which allow the receiving end to be adjustable from minimum height to 3 ft., 9 in. above the ground. Company officials say that this feature is ideal for loading or unloading trucks or freight cars or for use in conveyor lines. It also allows horizontal conveying at the desired height. Descriptive literature on this, and other features, is available. Check No. 5769 on the coupon and mail it to this publication.

No. 5774—Equipment Catalog

The Burrows Equipment Co. has published its 1957-58 equipment catalog which describes, illustrates and prices some 1,000 different items of equipment used in the handling, storing, processing and marketing of feed, grain, seed and related materials. The 200-page catalog is available without charge. Check No. 5774 on the coupon and mail it to this publication.

No. 6620—Tank Brochure

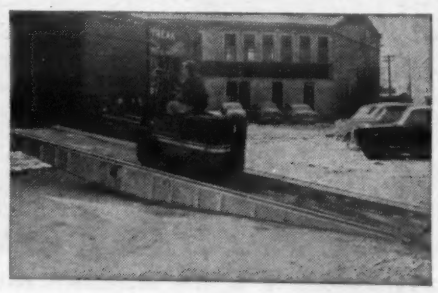
The Chicago Steel Tank Co. has prepared a 32-page color brochure describing its operations. The booklet is calculated to be of special interest to design engineering and other equipment buying persons in the process industries. Described in the booklet is all major fabricating equipment, capacities for thickness, length and width, tonnage, etc. Complete testing and shipping facilities are also fully explained. Check No. 6620 on the coupon and mail it to Croplife to receive the brochure.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 5725—Yard Ramp

The Lite-Line Metal Industries of Copperloy Corp. has introduced a new, magnesium, yard ramp. This portable ramp permits freight car



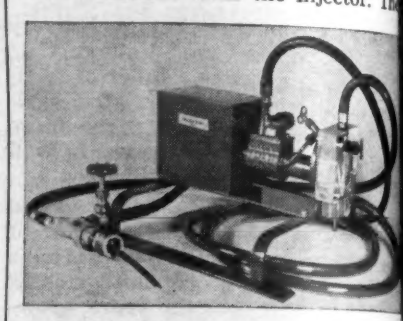
and truck loading where permanent dock facilities are not available, where existing facilities are overtaxed, or where special loading problems necessitate a portable dock. The ramp makes use of magnesium combined with a carefully engineered structural design to make it light and easily portable. One man can move and position the ramp, which is 30 ft. long and is available in four models, from 6,000 to 16,000 lb. capacity. Secure complete details by checking No. 5725 on the coupon and mailing it to this publication.

No. 5757—Seed Treatment Booklet

"The Benefits of Modern Seed Treatment" is the title of a new 16-page booklet published by Panogen, Inc. According to the company, material in the booklet has been selected and checked by extension pathologists and is designed to be "easy to read and nontechnical." "Seed treatment benefits are sometimes misunderstood and many farmers do not recognize the crop benefits and profits involved," the company adds. Contents include sections on: When does it pay to treat seed?, history of seed treatment, how seed treatment works, vapor action, reasons for treating wheat, oats, barley, flax, cotton and other crops, and how to treat seed. Nearly 50 photos are included. Secure the booklet by checking No. 5757 on the coupon and mailing it to this publication.

No. 6618—Injector

Literature concerning the Arcadia injector model 4575 for the injection of fertilizers into sprinkler irrigation systems has been prepared by the Arcadia Pump Manufacturing Co. The system is powered by irrigation pressure. One ¾-in. pipe opening is needed to connect with the injector. The



unit is said to be light, compact and easy to operate, and includes a plastic fertilizer suction hose and power and injector hoses ready to operate. The line of flow of fertilizer through the injector has no effect on the working parts of the pump. The fertilizer capacity is one of 45 gal. per hour. Recommended water pressure is from 35 to 150 p.s.i. The shipping weight is 18 lb. For details check No. 6618 on the coupon and mail it to Croplife.

No. 5765—Self-Dumping Hopper

A new self-dumping hopper 30 in. wide, designed for handling bulk materials through narrow aisles and into confined areas, is available from Roura Iron Works, Inc. The hopper has a capacity of 10 cu. ft. and is mounted on three casters, permitting manual or truck fork handling. The self-dumping action is triggered when the operator releases a locking handle on the rear of the hopper. The hopper is of heavy steel plate, weighs 45 lb. empty, is 49 in. long and is 40 in. high. The 30-in. width is standard but narrower widths are also available. Details will be sent upon request. Check No. 5765 on the coupon and mail it to this publication.

No. 6599—Chemical

The Crown Zellerbach Corp., chemical products division, announces increased production of dimethyl sulfide, a basic and intermediate chemical, claimed to be more than 99% pure. Company spokesmen said the chemical is useful both for its physical properties and as an intermediate but that it may find its major use as a raw material in chemical synthesis, for example, for making solvents, polymers and chemicals for agriculture. Reduced cost of the chemical is also announced. Secure a booklet "Properties and Suggested Uses of Dimethyl Sulfide," by checking No. 6599 on the coupon and mailing it to Croplife.

No. 6610—Laboratory Pellet Mill

The California Pellet Mill Co. has available a laboratory pellet mill which is claimed to have broadly diversified application in various chemical industries. Essentially, the equipment is designed to compress loose or fine particles into hard pellets. Advantages of the laboratory pellet mill, according to the company, are: Added flexibility to plant operations by allowing the plant to make its own tests and experiments; better test control; no interruption in regular production runs because a regular pellet mill need not be used; and con

Send me information on the items marked:

☐ No. 5725—Yard Ramp	☐ No. 6601—Toxaphene
☐ No. 5757—Seed Treatment	☐ No. 6610—Laboratory Mill
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☐ No. 5769—Conveyor	☐ No. 6616—Automatic Control
☐ No. 5770—Weighing Machine	☐ No. 6617—Gopher Control
☐ No. 5774—Catalog	☐ No. 6618—Injector
☐ No. 6599—Chemical	☐ No. 6619—Miticide
☐ No. 6600—Spray Tolerances	☐ No. 6620—Tank Brochure

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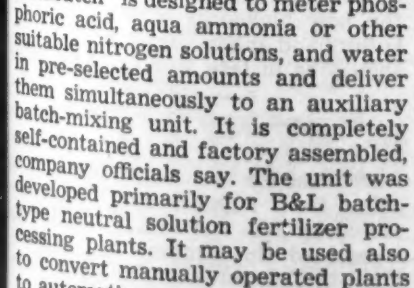
mination due to experimental materials being mixed with regular production runs is avoided. Secure details by checking No. 6610 on the coupon and mailing it to Croplife.

No. 6600—Spray Tolerances

United-Heckathorn is offering, free of charge, a wallet size folder containing a list of agricultural chemical spray tolerances giving the time limitation in days before harvest on various crops. The folder is in condensed form from information provided by the U.S. Department of Agriculture. To secure the folder check No. 6600 on the coupon and mail it to Croplife.

No. 6615—"Nurse Tank" Transport

General Metals, Inc., is now in production on a new trailer-mounted "nurse tank" transport designed for hauling nitrogen solutions and liquid fertilizers from storage tanks to the farm and out to the field. It serves as a source of supply for trailer or tractor applicator units and is used in putting the solutions on the field. The unit may also be used for trans-



porting insecticides, weed killers, and other liquid products. The tank holds 1,000 gal. It is made of aluminum alloy to withstand 30 p.s.i. working pressure. To receive literature, prices and other information check No. 6615 on the coupon and mail it to Croplife.

No. 6601—Toxaphene Folder

The use of toxaphene insecticides to control various insect pests which attack tomatoes is described in a new folder issued by the Hercules Powder Co. The leaflet discusses typical applications for the control of tomato hornworm, tomato russet mite, flea beetles, vegetable weevil, cutworms, tomato fruitworm, and blister beetles. To secure the folder check No. 6601 on the coupon and mail it to Croplife.

No. 6619—Miticide

A technical service bulletin titled Chipman 6199, which is also the trade name of a miticide and scalicide, has been prepared by the Chipman Chemical Co., Inc. The bulletin describes the product's use on non-bearing citrus. The product is described as "a granular, non-dusty, organic phosphorus compound—readily soluble in water for spray applications." It contains a bright violet dye so that accidental spillage can be easily detected. Secure the bulletin by checking No. 6619 on the coupon and mailing it to Croplife.

No. 6616—Automatic Control Unit

A new, completely automatic control unit for batch-type processing of neutral solution liquid fertilizers has been introduced by the Barnard & Leas Mfg. Co., Inc. The "B&L Autobatch" is designed to meter phosphoric acid, aqua ammonia or other suitable nitrogen solutions, and water in pre-selected amounts and deliver them simultaneously to an auxiliary batch-mixing unit. It is completely self-contained and factory assembled, company officials say. The unit was developed primarily for B&L batch-type neutral solution fertilizer processing plants. It may be used also to convert manually operated plants to automatic operation. Complete information on the equipment and neu-

tral solution liquid fertilizer processing is available by checking No. 6616 on the coupon and mailing it to Croplife.

No. 6617—Gopher Control

Cooke Laboratory Products has available literature on its product, known as Gopher Tabs. The literature states that University of California field demonstrations with field and forage crop producers, vegetable and flower growers and home gardeners show excellent kill results. The product contains .6% strychnine alkaloid. Check No. 6617 on the coupon to secure the literature.

OVER THE COUNTER

(Continued from page 9)

doesn't do it, no one will do it for him.

He knows that if anyone in the business must think clearly and not neglect analyzing any department it is he, and he will not shirk his job. Most certainly it takes time, but the good dealer is willing to put in the time to do the job right—even if it means evening hours now and then. He is willing to do it, because he knows it pays.

Dealers Should Urge Buying This Fall

Dealers in California and Arizona can help their fertilizer customers benefit in several ways if farmers will purchase their dry fertilizer this fall and store it on their farms for winter use, reports the California Fertilizer Assn. Those who use liquid fertilizers should order now for later delivery. The association provides these reasons:

1. The plant food is well cured and can be delivered without delay.
2. The exact grade and amount of dry material which will be required is available for immediate delivery, and orders placed now for liquid fertilizer will receive priority for delivery at the proper time.
3. The fertilizer is on hand and will be ready to apply when the proper time arrives.
4. Time and costly delays which occur when everyone is scrambling for his requirements in the spring will be saved.
5. While the over-all picture may indicate a good supply, there may be spot shortages, and scarce material may not be available when the user needs it in the spring. It can be had now.

The association says that dry fertilizer can be safely stored in any dry farm building, so that it will be in good condition when needed for application. It should be stored on wooden pallets or frame cribbing above the floor to avoid soaking up moisture. Bags should not be piled more than seven or eight high to prevent caking.

The association recommends the local fertilizer supplier as a good source of information concerning the soil and crop needs of the area which he serves.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Price policies of the Tennessee Valley Authority were the subject of questioning at hearings conducted in connection with the TVA appropriations bill. Industry witnesses declared that TVA's prices on ammonium nitrate were some $6 below that quoted by private firms, and despite TVA's saying that much of its production of fertilizer is used for "demonstration and educational purposes," actually only about 3% of it goes for that purpose.

Victor Chemical Works announced the acquisition of the phosphate ore washing plant and plant site, plus 2,700 acres of phosphate lands owned by Federal Chemical Co. in Tennessee.

The Melson Fertilizer Co. near Georgetown, Del., suffered a fire loss of some $300,000 in July. The blaze destroyed the main portion of the plant, a building 150x300 in size.

Potash deliveries showed an increase in the first half of 1957, the American Potash Institute announced. Deliveries for agricultural purposes in the U.S., Canada, Cuba, Puerto Rico and Hawaii totaled 2,016,465 tons which was an increase of nearly 7% in salts and K_2O.

The U.S. Department of Agriculture alerted farmers of the Carolinas to be on the lookout for the presence of witchweed. Known to be present on some 38,000 acres near the coast in both states, the weed is expected to be found in additional localities even though efforts are being made to contain it.

Diamond Black Leaf Co. announced the closing of its nicotine extraction plant at Richmond, Va. The shutdown will not affect the firm's research and development group nor its eastern district sales offices at Richmond, according to George V. Dupont, general manager.

Sumner H. McAllister was named by Shell Chemical Corp. to succeed Fred W. Hatch as manager of the agricultural chemical sales division. Mr. Hatch will retire from Shell at the end of the year. His term as president of the National Agricultural Chemicals Assn. is also to end this fall.

The Interstate Commerce Commission, in a decision on Aug. 6, granted the U.S. railroads permission to increase their tariffs on shipments of fertilizers. Eastern lines were to advance rates 14%; Western lines 12% and Southern lines 9%. The fertilizer industry took a dim view of the situation, particularly since the door remained open for still further increases later.

An invitation to consolidate with the National Plant Food Institute was extended to the Middle West Soil Improvement Committee. John A. Miller, NPFI president, made the proposal. If accepted by MWSIC, the Chicago office would become the middle western branch of the Plant Food Institute. Both the MWSIC board of directors and its membership must approve before the arrangement is final.

Soil bank plans for 1958 appeared to Washington observers as being of little special benefit to the fertilizer and pesticide industries. Its provisions were expected to present approximately the same situation as obtained this year.

The U.S. Department of Agriculture reported successful application of a systemic insecticide, Dow ET-57, for control of the nasal botfly of sheep. Application of the product has resulted in excellent control in most cases, USDA reported.

New officers and two new directors were named by the Miller Publishing Co., publisher of Croplife. Martin E. Newell, Kansas City, Mo. became chairman of the board of directors; Milton B. Kihlstrum, president; Wilfred E. Lingren, executive vice president; Don Rogers, Chicago, and Paul L. Dittemore, New York, vice presidents; Donald Neth, managing editor of Croplife, secretary and member of the board of directors; and George L. Gates, editor of Feedstuffs, member of the board.

Stauffer Chemical Co. announced that it will build a 400-ton-a-day capacity sulfuric acid regeneration plant at Hammond, Ind. Construction was expected to begin in August.

Potash deliveries for the 1956-57 year increased 8%, according to figures released by the American Potash Institute, Washington, D.C. Eight leading American potash producers and the importers delivered 2,390,584 tons in the past fiscal year.

Spencer Chemical Co. announced plans to construct a new urea plant at Henderson, Ky. The new facility will produce approximately 100 tons a day when it comes on stream in the summer of 1958.

The Great Plains Agricultural Ammonia Conference was held at Manhattan, Kansas July 11-12, with speakers discussing application methods, reporting on yield and profit increases by farmers, and outlining good business methods.

Production of anhydrous ammonia, ammonium nitrate, urea, potash and phosphoric acid increased in the U.S. during the period of January-March, 1957, as compared to the same period of 1956, the U.S. Department of Commerce reported. Some other commodities, including BHC, DDT, ammonium sulfate, and superphosphate dropped a slight bit in the first quarter of this year.

A fertilizer industry conference held at Cornell University, Ithaca, N.Y., deliberated upon the problem of how to get farmers to act on information given them by various sources. Speakers included Dr. W. H. Garman, NPFI, Washington, D.C.; Dr. Charles E. Palm, director of the New York agricultural experiment station; and Dr. Richard Bradfield, Cornell agronomist.

That fertilizer trials on dry range land in California "Exceed fondest hopes," was the message brought by Sidney H. Bierly, general manager of the California Fertilizer Assn. in an article describing pasture and range land development in that state. He told of highly successful results from added fertilization and presented data from a number of California experts on pasture and range use.

Doing Business With

Oscar & Pat

Oscar Schoenfeld ate the last of his stuffed spareribs, wiped his fingers on the paper napkin and surveyed his gooseberry pie.

"Ach, Minnie," he said, "that was a good idea of mine, taking a vacation two days at a time. That Irisher can't figure it out. He thinks I should go away two weeks in a stretch. Not me. When I vacation two days at a time I can come back and watch that fellow. Ach, he will not have a chance to pull much stuff when I am gone so few days."

"Sometimes I think you are too hard on him," Minnie put in. "He works hard, even if he works nights instead of days. He sells so much of everything."

"He sells and he don't worry about collecting," Oscar snapped. "He leaves that to me. If you had married him, Minnie, you would be in debt so far you would never get out. He spends and spends like crazy, him and that wife of his. Such fools."

"But they seem so happy," Minnie said. "They must save something."

Oscar chewed on his pie. "Not much, I'll bet. When they walk down the street they buy what they see. They are not like us, Minnie, come home and argue for two hours, and then we decide to wait until next year to buy. That's the way to get ahead."

Before Minnie could reply, the doorbell rang. Oscar got up and answered. As he opened the door, he saw Gil Dorkins, a farmer, with a white rooster under his arm.

The long necked, small headed farmer was grinning. "Oscar, old boy," he chuckled, "handover that $5 cash for the first rooster being caught. The $3 discount can wait till I get my fertilizer."

Oscar paled. "$5 . . . Rooster . . . Discount. Ach, what is this?"

"He did not catch the first rooster!" shouted a feminine voice. "I did. I was in the parking lot downtown and I had my rooster under my arm when I saw Dorkins reaching for his rooster under his truck. I got my mother-in-law here to prove it."

"That's right!" shrilled a bespectacled grey-haired lady.

Dorkins' face flushed a deep red. "But your rooster got away and you had to catch him again," he said sharply. "I got hold of mine and retained possession. Gimme the $5, Oscar. Pat wasn't home so we come over here to get it from you. I need that $5 for shopping tonight. My old lady always goes hog wild when she's in them stores."

Oscar was shaking, his fists clenched. "I know notting about it!" he snapped. "Somebody is crazy. We got no contest."

"Oh, yes you have," shouted Dorkins. "Don't try to wiggle out of it. Here, hold my rooster and I'll show you."

He shoved the squirming rooster into Oscar's protesting arm, then unfolded a copy of the local newspaper. "Look at it," he said. "You're advertisin' you are releasin' 15 white roosters, banded, in the downtown parking lot at 5 bells tonight, and the first rooster caught and brought to the store gets $5 and an extra $3 discount on every ton of fertilizer bought for fall spreadin'. Can't you read?"

Oscar looked and choked some more. "That Irisher!" he yelled.

"Only two days I go away, and then he pulls a crazy stunt like this."

"You're partners, ain't you?" shrilled Mrs. Pete Enright. "You're responsible, too. He ain't got the $5 comin'. I have. I won the rooster chase."

There was a blinding flash of light and then a voice boomed. "Hold it, folks! I want another pix from a different angle." And before Oscar could do anything about it, the light flashed again.

"Don't print it!" he shouted. "I do not want my picture in the paper. Ach, I do not want anything to do with this crazy rooster contest."

Hank Bostwick, the lanky, sophisticated news photographer for the local paper sauntered forward, camera in hand. "You don't! Why, Oscar, this will be front page publicity for you. It'll be good for your farm supply business. It's a swell stunt to build interest in fall fertilization."

"It's foolish, that's what it is!" yelled Oscar. "Get out, all of you. Go find that Irisher and take his picture."

The photographer looked stunned. "Listen, this stunt was cooked up by Pat and he arranged it with our office. How did we know Pat would be called out to a farmer's in the next county just as the roosters were released in the parking lot? The stunt went over swell for a drug store in Nebraska."

"If you—you publish that picture of me, I will sue you," Oscar thundered. "This is not my monkey business. I sell fertilizer if a farmer wants it, and can pay for it" (he directed a fierce glance at Gil Dorkins who owed the firm $9.80 for 45 days) "and I don't go aroundt actin' foolish in contests, either." And with that he slammed the front door.

"Holy Smokes!" Gil Dorkins said. "I thought they didn't make guys like that no more."

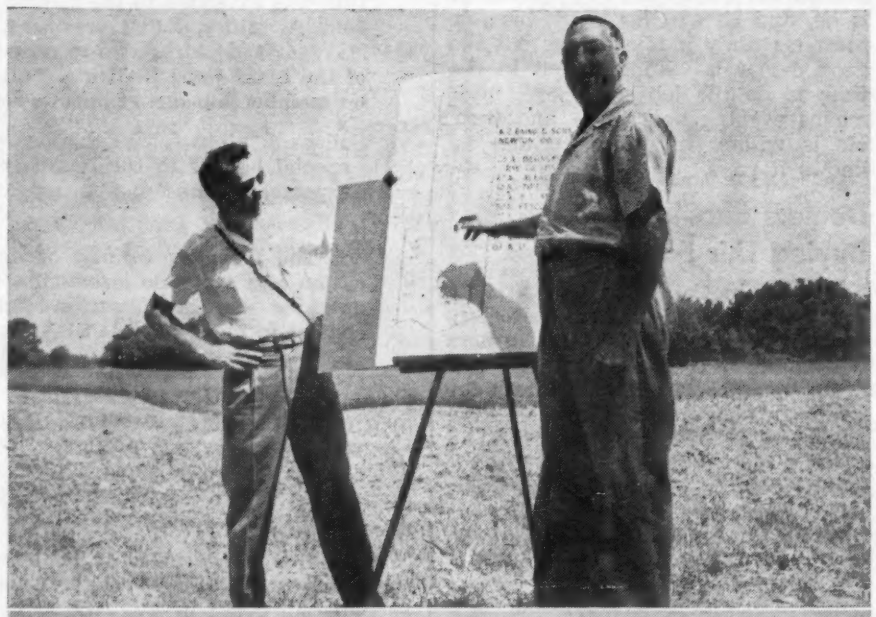
"How about my $5 cash prize for being the first one to catch a rooster?" complained Mrs. Enright. "I've got a witness."

"You didn't catch the first rooster!" said Dorkins stubbornly.

"Listen, you two," said Hank Bostwick disgustedly. "Let's go back to Pat's house. Maybe he got home by this time. Let him decide who's the winner. Cripes, these promotion stunts. They give me the willies. This one I figured was a dilly, though, good for the front page. But it just goes to show you, a guy is never right all the time. Nuts!"

WAR ON WILLOWS

STATE COLLEGE, N.M.—A war on willow trees has been declared by Gordon Hoff, New Mexico A&M College extension agronomist, and he recommends 2,4-D for the job. The willows steal precious moisture from irrigation ditches and pastures. "Chemical control is often best because it is selective," Mr. Hoff said. "Mechanical control such as plowing and burning gets rid of willows and weeds, but destroys good grass in the process."



GEORGIA PLANT FOOD MEETINGS—Annual summer meetings sponsored by the Georgia Plant Food Educational Society and the agricultural extension service were held in various parts of the state during July. Counties in which the meetings were held included Oglethorpe, Newton, Thomas and Bulloch. In top photo above, A. C. Ewing, Newton county farmer, uses an easle to explain his farm plan to the group which toured his farm. The lower photo shows a portion of the Georgia educational society group as its members inspected different varieties of alfalfa as part of the tour.

Gibberellic Shows Promise in Control Of Strawberry Virus

CORVALLIS, ORE.—A new technique using gibberellic acid may free strawberry plants of yield-reducing viruses, according to research at the Oregon State College agricultural experiment station.

Ralph Garren, horticulturist at the station, reports that some new plants produced on runners of strawberry plants treated with gibberellic acid have checked out free of virus. He says the new technique may make it possible to produce virus-free plants of strawberry varieties, such as the Northwest variety, which haven't been eligible for certification in Oregon due to virus infections in all known stocks.

In his experiment, Mr. Garren used strawberry plants stunted by several viruses that caused reduced yields in the state. Gibberellic acid was injected into the crowns of the plants, stimulating runners to grow rapidly and develop new plants much sooner than usual.

Theory behind the experiment was that gibberellic acid might speed growth to the point where new plants could be produced and separated from the mother plant before viruses could move into the new plants.

To date, it looks like the idea works. Paul W. Miller, U.S. Department of Agriculture plant pathologist at Oregon State College, says several young plants produced by this method have been checked by the best virus indexing methods known at this time. So far, the new plants have been found free of virus. The mother plants also seemed to benefit from the gibberellic acid treatment. Some of them developed into normal-appearing plants that produced normal berries.

New Pesticide Residue Research Project Being Set Up in California

DAVIS, CAL.—A new pesticides residue research project is being set up at the University of California, Davis.

The new project will be aimed at working out residue problems for the safe use of the new chemicals being developed to control insects, mites, plant diseases and weeds, according to Eugene M. Stafford, associate professor of entomology.

These studies will include breakdown of pesticides on or in plants between application time and harvest, application rates to ensure no residues at harvest time, residues in soils, and other problems that must be solved before new pesticides can be registered and marketed.

Basic research in the action of pesticides in insects and plants also will be carried on, Mr. Stafford said. Studies of how chemicals kill insects and other pests will be cooperative with work in various departments on the Davis and Berkeley campuses.

Mr. Stafford is chairman of a four-man committee that is setting up the project. Departments of botany, plant pathology, and veterinary science are also represented.

A biochemist and his technically trained staff, yet to be appointed, will be in charge of the pesticides residue research, Mr. Stafford said. Until more laboratory space is available, the work will be limited in scope. The present entomology building will be turned over to the project when the new biological sciences unit for botany and entomology is built, which should be in late 1958 or early 1959.

BUILDS NEW WAREHOUSE

CRESCENT CITY, CAL.—A new warehouse for stocking fertilizers and other farm supplies has been completed by Mr. and Mrs. C. J. Akers, owners of the Square Deal Lumber Yard in Crescent City, Cal. The floor level permits easy loading of pickups and trucks from the stocks carried.

5 Half-Day Sessions Set for Fertilizer Industry Round Table

WASHINGTON—Five half-day sessions will comprise the 1957 Fertilizer Industry Round Table scheduled to be held at the Sheraton Park Hotel, Washington, Nov. 6-8. According to Vincent Sauchelli, chairman, the meetings this year will be devoted exclusively to a discussion of questions received from the membership. No formal papers, as such, will be presented at the meeting.

Dr. Sauchelli states that each session will concentrate on a single phase of fertilizer manufacture. The first session, he says, will deal with a) standardization of raw materials; b) formulations, theory and practice; and c) chemical control.

Session 2 will be concerned with problems associated with ammoniation.

Session 3 deals with granulation.

Sessions 4 and 5 will be devoted to: a) manufacture of superphosphates; b) liquid fertilizers; c) plant effluents; d) instrumentation; e) maintenance.

"More than 100 practical items will be discussed by persons selected by the membership for their knowledge, experience and general competence. Owing to the large attendance of the past two years, the executive committee hit upon the plan of selecting about 30 persons who would each lead the discussion of the items assigned him and stimulate additional discussion from the floor," Dr. Sauchelli explains. "By this method the spirit of free discussion by members will be retained regardless of the size of the attendance." This plan has received the enthusiastic endorsement of the membership, the chairman reports.

CALIFORNIA OPERATOR

(Continued from page 9)

"you must look out for snails at this time of year, for they are apt to damage these plants."

These suggestions are aids to the customer and invariably appreciated, whether or not he buys further.

Asking questions of the customer, such as how he might plan to use certain garden materials, leads to the opportunity to make helpful suggestions.

"Only by asking or giving suggestions can you get a customer to buy more than what he has asked for directly," says Mr. Gray.

Such unusual nursery devices as self service carts designed for this kind of use also help, as the customer doesn't have to struggle with heavy packages. The arrangement of a nursery is conducive to a certain amount of self-service, especially with such a cart, Mr. Gray feels.

At the moment Cottage is faced with the problem of reorganization of its facilities. A new state highway close by calls for a highway approach on Solano avenue cutting off a portion of the Mr. Gray's property. Some of the buildings will have to be moved back, and part of the property plan changed around. But the basic atmosphere and business policies will remain the same, he says.

RESISTANCE REPORTED

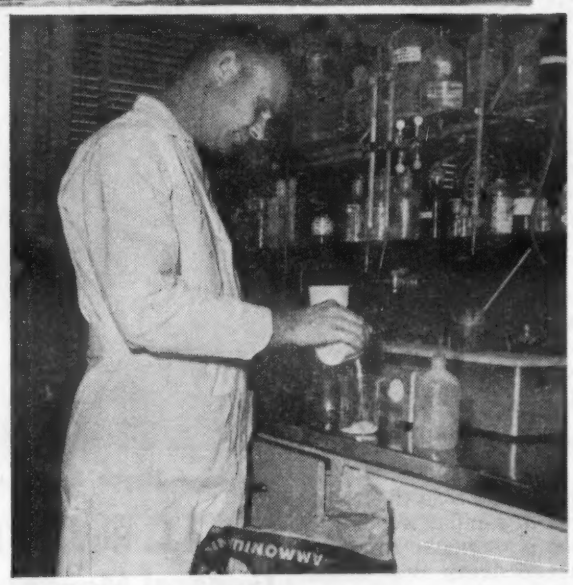
BERKELEY, CAL.—The red spider mite, one of the worst citrus pests, is showing first signs of resistance to phosphate insecticides, Lee R. Jeppson, associate entomologist, University of California at Riverside, reported. He said that his studies showed dosages 200 times normal are required to kill the resistant mite.

Brea Brand **Prilled Ammonium Nitrate**

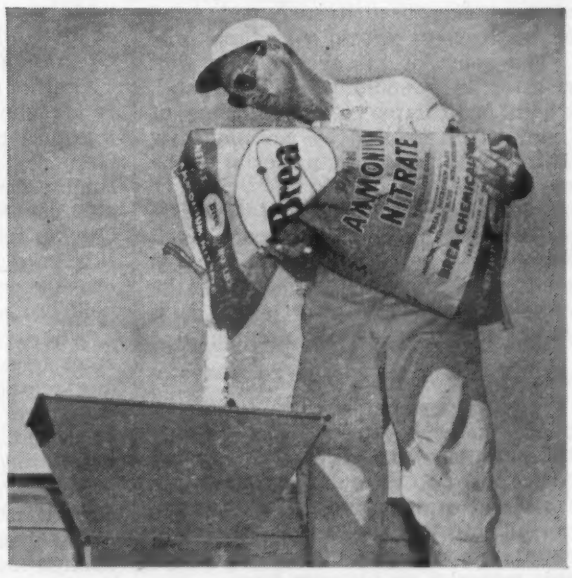
TOP QUALITY ALL THE WAY... FROM PLANT TO FIELDSIDE

THIS GIANT PRILLING TOWER—the only one on the Pacific Coast – processes 50,000 tons of prilled ammonium nitrate annually, which assures you of ample supplies at all times.

BUILT-IN "MOISTURE BARRIER"—You get double protection against damaging moisture when you specify Brea Brand. Prills are coated, then packaged in non-porous bags to further seal in quality. Photo above demonstrates effectiveness of polyethylene-lined bags.



SAMPLED TO GUARANTEE QUALITY—Each shipment of Brea Brand dry fertilizer is quality-checked before delivery is made. While they are in storage, supplies of prilled ammonium nitrate are inspected in a never-ending program of rigid quality control.



UNIFORM, FREE-FLOWING PRILLS—Careful, uniform sizing and coating produce free-flowing Brea Brand Prilled Ammonium Nitrate. Prills apply evenly regardless of the application rate, are easy to apply by ground rig, aircraft, or sprinkler and surface irrigation.

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Collier Carbon and Chemical CORPORATION

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BREA BRAND PRILLED AMMONIUM NITRATE
...THE PREMIUM QUALITY DRY FERTILIZER

33.5% Nitrogen guaranteed
Ammonic Nitrogen–16.75% • Nitric Nitrogen–16.75%
Same-day rail or truck shipment.
Fieldside delivery to save handling costs.

FARM SERVICE DATA

Extension Station Reports

Atomic radiation is helping plant scientists discover the "hows" and "whys" of some little-known processes of plant nutrition. Using a scintillation well counter—a new device for radiation measurement—vegetable crops researchers at the University of California, Davis, hope to learn how spray-applied zinc compounds are absorbed by leaves and transferred to the roots and other parts of plants.

In their first test series, the scientists will study the movements of radioactive Zinc 65, a gamma ray emitter, as it travels through tomato plants after leaf application. Zinc deficiencies were recognized a few years ago as a serious farm problem in parts of California. The Davis scientists made some hurried investigations to identify the symptoms of the trouble and to discover its range among various soil and plant types.

They found that in some soils, zinc compounds become "fixed" (changed into forms the plants can't use) by chemical action. To correct this problem, they hit upon the method of foliar application, which has proved satisfactory and is used extensively today.

"Now that 'the fire has been put out,'" says John Lingle, vegetable crops specialist, "and we know how to correct the zinc problem by foliar sprays, we can spend more time on basic research to determine the factors that affect foliar absorption."

These factors may include the time of application, the age of the plants, whether the sprays are applied to upper or lower leaf surfaces, and the nature of other substances that accompany zinc in the spray mixtures.

In a typical test, Mr. Lingle explained, a compound containing Zinc 65 is applied to leaves of a tomato plant. Later, the roots of that plant are extracted from the soil, dried, and "counted" in the scintillation well counter. This shows how much of the element has been transferred from leaves to roots within a certain time.

The heart of the scintillation well counter is a sodium iodide crystal, which scintillates (emits flashes of light) when excited by gamma rays. This crystal and the material to be measured are placed in the "well" of the apparatus, a cylindrical cavity in a block of lead. The number of scintillations per minute, counted by a photo-multiplier unit, indicates the relative amount of radioactive substance in the measured sample.

★

Exploratory trials with Zineb are being made by Lower Rio Grande Valley citrus growers who are trying to prevent rust mite damage to grapefruit and orange trees. This was reported by W. H. Friend, associate county agent, who himself is trying this material on his own trees.

Rust mites have been abundant as a result of showery weather. Zineb has greatly increased the percentage of bright fruit, when applied during mid-summer under Florida conditions, and has reduced rust mite numbers, Mr. Friend said.

★

New Mexico's growing lettuce industry is being aided this year by a new leaflet by John J. Durkin, New Mexico A&M College extension entomologist, on controlling insects on fall lettuce.

Mr. Durkin points out that the worst lettuce pests in New Mexico are the cabbage looper and corn earworm, which build up large populations on cotton, corn and tomatoes and move into lettuce fields as soon as the young plants begin to leaf. The leaflet contains a complete guide on the insecticides to use, necessary amounts for dusts and sprays and suggested application times.

New Mexico farmers are devoting an increasing amount of their acreage—diverted from cotton—to lettuce, tomatoes, melons and other specialized crops. Lettuce cultivation has been especially successful in the Las Cruces area, and is now being initiated further up the Rio Grande valley, especially near Belen, Albuquerque and Bernalillo.

★

Near-perfect control of annual weeds in corn is shaping up at Oregon State College with a chemical weed killer developed in Switzerland and tentatively scheduled for commercial sale in this country next year. Sold in Europe under the name "Simazin," it is used there a soils sterilant when applied at high rates. W. R. Furtick and Dave Chilcote, Oregon State College agronomists, tested low rates of Simazin last year and found it gave almost 100% control of annual weeds in corn throughout the growing season.

Trials this year were expanded to all major corn-producing areas of Oregon. Early reports from throughout the state indicate that treated stands of four to six-week-old corn are virtually free of weeds with no damage to corn. Simazin was applied just before corn emerged.

Two pounds of Simazin, as it will be sold commercially, gave weed control on an acre of corn with full coverage or three acres when applied in bands along the corn rows.

Simazin is highly insoluble and should be applied with an agitator tank using 30 to 40 gallons of water per acre. Good rainfall or irrigation is needed to take the chemical down to weed roots. It is not effective as a contact-killer on weed foliage, the Oregon agronomists said.

Another promising aspect of Simazin is for control of quackgrass, one of the most persistent weed problems in Oregon. Six pounds of Simazin, as commercial product, gave considerable control of quackgrass patches in Oregon trials. While too expensive at this rate for field spraying, it may prove economical for spot spraying in field crops, the agronomists said.

Where Simazin is applied at heavy rates to control quackgrass, the residue remaining in soils the following year may cut production of certain susceptible crops such as spring barley, according to the agronomists.

The lower two-pound rate that kept corn stands free of annual weeds for a full year does not appear to leave enough residue to harm any crops the following year. Crops that have proven quite tolerant to residues of heavy rates of Simazin are wheat, canning or field peas, and vetch.

Tolerance of wheat to fairly heavy residues of the chemical has sparked interest in using the material for chemical summer fallow of wheatlands. Also, tolerance of wheat proved sufficiently high that cheatgrass was removed selectively from wheat when Simazin was applied as a pre-emerge spray on fall-seeded wheat.

JOINS OKLAHOMA A&M

STILLWATER, OKLA.—Dr. John F. (Jack) Stone, soil scientist at Iowa State College and co-inventor of a radioisotopic soil moisture determination instrument, has accepted a new soil physics research and teaching position at Oklahoma A&M.

Utah Dealer Finds Profits in Shifting With Trade Demands

By JESS BLAIR
Croplife Special Writer

Tim's Feed Store at Murray, Utah, has been catering to urban and rural business the last three years with profitable results. At one time the trade was nearly altogether rural, according to owner, Fred Timmerman. Later, the green valleys of Utah began to attract new residents and they moved into the state. As a result the area around the Great Salt Lake began to swell in population.

"Our livestock business dwindled as a result," he said, "but these people looked like good customers, as they cut up the farm land and put in small acreages. I knew all wasn't lost because we began to see new gardens, goat and chicken farms, and a lot of pigeons and rabbits. Also new orchards and truck patches were planted."

Mr. Timmerman made a special effort to get this new business, sometimes by advertising but more often by just visiting around and finding what kind of merchandise was needed.

The rabbit feed business has become one of his best moneymakers. He now sells five tons of rabbit feed a week besides medication and equipment. Poultry feed, dog food, and several other kinds all combine to bring in more money than his former sales to large farmers and ranchers.

The farm chemical business has also held up because he now makes five small sales where he formerly made one. Insecticides and fertilizer sold in small packages add up just as much volume and the profit is greater.

"We are not a big store," Mr. Timmerman says, "but we saw a good way to build a nice family business. That was to get acquainted with everyone, to give as much personal service as possible and to bring the store up-to-date with a better variety of merchandise."

His two sons are in business with him, and they have brought in much new business by acting as trouble shooters. They run a delivery truck on a regular route, delivering feed and other supplies to customers. In addition, they help treat sick animals, stop and look at some insects a farmer has caught and recommend the proper insecticide to use. They also solicit new business and meet newcomers to the area.

The highway trade has steadily increased the last year or so. The store is located on the main highway between Salt Lake City and Provo and hundreds of cars stream by every hour. For a long time these people just drove on without noticing Tim's Feed Store.

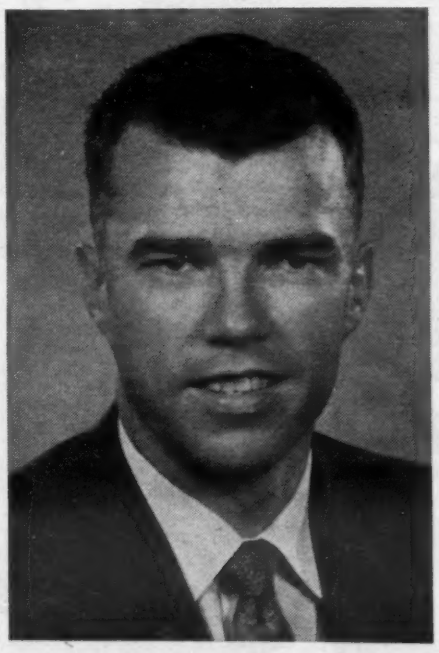
After he dressed up the building, however, and put some of the merchandise out on the sidewalk in attractive displays, an occasional customer came into the store.

"To stop traffic you've got to have something for them to see," Mr. Timmerman states. "Quite often now we have someone stop who is raising rabbits or maybe needs garden tools or grass seed. Sometimes these sales are quite small, but later the purchaser may become a regular customer."

One profitable phase of the highway trade is the calls for dog food. A good many tourists with dogs in their cars now see the store and the signs and stop for dog food.

"The small stores have been hard hit in this area," Mr. Timmerman says, "and some of the owners who didn't change their methods are closed down. Now I think we've got to modernize and arrange merchandise in departments, and go after a new type of business. Instead of selling feed and fertilizer in large quantities, we've got to sell a dozen new things in small packages and containers, and we must also stock up on equipment such as rabbit hutches, sprayers, and other things the old-fashioned store never handled.

"Also it requires better management, closer attention to details and harder work. But from our own experience, the increased sales make it worthwhile."



Bryce L. Rhodes

Bryce L. Rhodes Named General Manager of IMC Phosphate Chemicals

CHICAGO — The appointment of Bryce L. Rhodes as general manager of the Phosphate Chemicals Division of International Minerals & Chemical Corp., Chicago, has been announced by H. F. Roderick, division vice president.

Mr. Rhodes, who joined IMC in 1954 as development manager of the division, was named its development and production staff manager last year. Previously, he was a vice president of Synthron, Inc., Providence, R.I., textile chemical manufacturer. After attending Northern Montana College and the University of Minnesota, Mr. Rhodes received his degree of master of chemical engineering from Cornell University in 1946.

Iowa Plant Disease Clinic Diagnoses 100 Cases Each Week

AMES, IOWA—More than 100 diseased plant specimens are coming into the new Iowa State College plant disease diagnostic clinic each week, Malcolm C. Shurtleff, extension plant pathologist, Iowa State College, said recently.

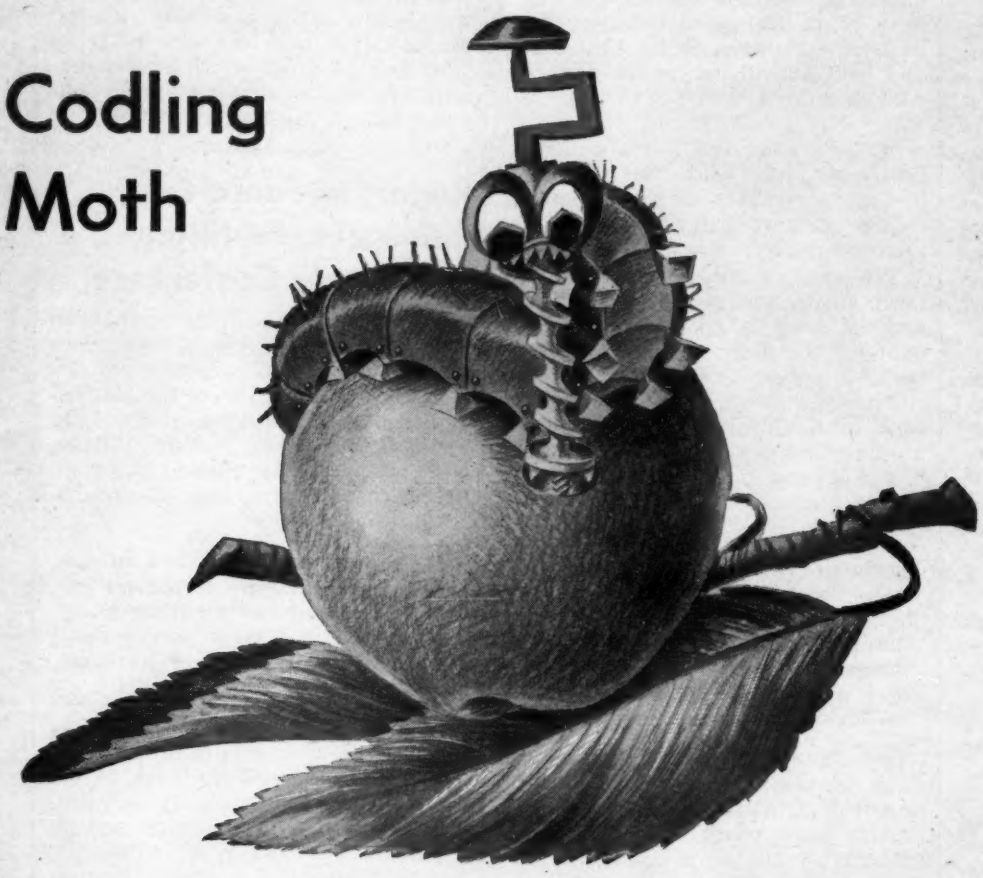
Mr. Shurtleff said a total of about 2,000 specimens will be processed this year at the clinic. This will be an increase of 1,300 over last year—the first year the clinic was open. He said the clinic has already found several rare diseases. "To give you an example of what we are up against," he said, "there are 81,000 known plant diseases and I have studied and worked with only about 9,000 of them."

An oak wilt and dutch elm disease laboratory is part of the clinic, which was established to speed up processing diseased plant specimens, and to provide a place where anyone can bring a diseased plant specimen and talk about it with a trained plant pathologist. A card file of all plant specimens received helps in predicting seasonal development of important diseases and helps plant pathologists plan research and extension activities.

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

Codling Moth



How to Identify

The codling moth is a dirty-white or pinkish caterpillar or worm frequently found in apples. Its distribution is all over the United States. In some sections it is called the appleworm.

Life History of Codling Moth

The worms pass the winter in cocoons in crevices under the bark and in other protected places, usually on or beneath the tree. The moths begin to appear about the time apple trees bloom and some moths are present most of the remainder of the growing season. The tiny white eggs are usually laid on leaves near fruit or on the fruit. The first worms normally begin to enter the small apples 3 to 4 weeks after the blossom petals have fallen. The number of generations in a season ranges from one (with a small part of a second) in the northern apple-growing areas, to three nearly complete generations (and a part of a fourth) in the southernmost producing areas.

Damage Done by Codling Moth

Although this pest is usually associated with damage to apples, it also attacks pears, quinces, English walnuts and occasionally other fruits. In apples, it causes the familiar worm holes on the sides and blossom ends of the fruit. The tunnels go completely to the core. These holes are often filled with dark-colored masses, coarse brown or black pellets which sometimes project out of the hole. Such apples are, of course, of small value and the value of fruit thus damaged runs into hundreds of thousands of dollars each year.

Control of Codling Moth

Since this insect burrows inside the fruit, proper timing of application of insecticides is of utmost importance. The first application should be made just after the blossom petals have fallen, according to USDA information. Recommendations for control materials, timing, application practices, dosages, etc., may vary widely in different states and sections of the country. It is therefore difficult here to attempt to give specific suggestions as to what materials should be used or how they should be applied. Local authorities such as county agents, state experiment station entomologists, and manufacturers of the various pesticides should be consulted for specific information. Labels on pesticide containers carry full instructions on use and dosages. Users should always be urged to study labels carefully before applying any insecticide on food or feed crops to avoid the risk of illegal residues at harvest time.

Codling Moth illustration furnished through courtesy of E. I. duPont de Nemours & Co., Inc., Wilmington, Del.

Decreased Costs
Increased Sales
Better Personnel

Fertilizer Firm Ups Sales 40% in Year

By JESS BLAIR

Because of a 40% increase in business in one year, the Southwest Fertilizer & Chemical Co. has been suffering growing pains. Yet it is quite a pleasant feeling, according to John Ivey, the company's president, who is perfectly willing to add a little more growth in coming years.

The business boom for the company has taken place in spite of a Southwestern water shortage which has curtailed crop acres and in some areas threatened to put farmers out of business.

The company is both a manufacturer and a retailer. It makes fertilizer and insecticides and sells them through five company stores and about 30 retail outlets. Yet the company was firm in advertising the products and pushing sales in the irrigated farming areas.

"We decided to take the business out to the farmer," said Mr. Ivey, "because the average farmer doesn't keep up with all new developments. Advertising is not enough to sell fertilizer and insecticides. We take them to the field and show farmers what they will do."

When Mr. Ivey took over the presidency of the firm, a general reorganization took place. He saw the company was confronted with several problems. One was that of expanding sales. Also the cost of manufacturing had to be reduced as far as possible. Mr. Ivey says the firm adopted a three-point program, which included lowered production costs, better use of personnel and more sales of products.

"We made a close analysis of every operation in the plant," Mr. Ivey said, "checking every piece of machinery and phase of the manufacturing end. Also we carried this into our transportation, advertising and sales work. Every useless move was eliminated; some jobs were cut out and others created in order to get the most manufactured fertilizers and insecticides for the least cost."

The analysis was not a one-time thing, however. Mr. Ivey and his associates keep constant check on operations and speedily make any changes that seem necessary.

A second important step is to keep good personnel. Mr. Ivey says one employee may be worth three times as much as some one else doing the same kind of work.

"We need men who can produce," he says, "and fortunately we now have some top men. Two of the fellows who can claim much credit for our recent success are general manager W. G. Nelson, a business graduate of Oklahoma State University, and Neil Macallister, sales manager, who graduated from Texas A&M College.

"College men are not always the best," Mr. Ivey said, "but if a man is a good prospect at the beginning, college certainly will make him a better employee."

The screening of employees carries down to the lowest job in the plant, and the company tries to get the best man for the position, but not necessarily the cheapest one.

After the unit cost for each 100-lb. sack of fertilizer is lowered to the absolute minimum, then the third problem must be considered. This is selling the product.

"Right there we decided our products were good and would make the farmer money," said Mr. Ivey, "but telling him wasn't enough. There are so many new things coming up in agriculture that a good salesman shows his customers what the product will do.

"If we don't have a good crop to show the farmer in his area, we carry him to some community where fertilizer is paying off. We've made numerous trips to Pecos with a carload of local farmers and haven't charged them a cent.

"It costs us money, to be sure, but it pays off. Those fellows see crops where fertilized cotton is making three bales to the acre. They walk over the field, talk to the growers and come home convinced that fertilizer will make them money also. The next year they are all our customers, while other farmers watch the results."

The selling program also includes a liberal advertising budget, money for experimental purposes and for visiting numerous farmers in their homes.

Mr. Ivey says fertilizer has held its own, even where water shortages have become acute. In the Rio Grande Valley where the plant is located, farmers now use about 150 to 200 lb. of anhydrous ammonia and up to 400 lb. of superphosphate to the acre on cotton. Over 200 miles east in the Pecos Valley, the usage has climbed to as much as 300 lb. of nitrogen and 600 lb. of phosphates. The yield is also considerably heavier in the Pecos area.

Another factor in building large sales is the wealth of information the company officials carry in their own minds. Not only do they know the ingredients of every fertilizer they make and what it will do, but they can mention offhandedly dozens of customers, where they live and the acreage farmed. They know just exactly how much fertilizer the farmers used and the production they got.

"This is not something you sell like standard products in a grocery store," Mr. Ivey pointed out. "Fertilizer costs the farmer money and he can do without it, or at least he may have been farming without it. It is our job to show him where he can pay for the fertilizer and get from three to ten dollars back for every dollar he spends.

"Therefore you must know the kinds of soil in the area, type and amount of fertilizer needed and how to apply it. When a farmer buys a new type of fertilizer, he needs to be shown these things."

The company also makes insecticides and sells these in the same manner as fertilizer. Mr. Ivey says the alfalfa aphid has boosted the sale of insecticides, not to mention cotton insects which show no signs of running up the white flag.

"Farmers must farm chemically now," he concluded. "And as you know, this is a technical business. The grower can't keep up with all developments and the higher analysis fertilizers being put on the market.

"So to sell him your products, you must give him service too. I think this getting out on the farm with the owner and helping him with his problems has been one of the main reasons why our small company has enjoyed such a substantial growth."

GROWING SALES—John Ivey (above) president, Southwest Fertilizer & Chemical Co., El Paso, Texas, guided his fertilizer and insecticide manufacturing and retail operation to a 40% sales increase in a year's time. The firm sells through five company stores and about 30 retail outlets in several southwestern states.

Report on Factors Influencing Fertilizer Use Set for Conference

WASHINGTON—Plans have been completed for the annual New England Fertilizer Conference, to be held under the auspices of the National Plant Food Institute, at the Bald Peak Colony Club, Melvin Village, N. H., Sept. 25, Dr. Russell Coleman, executive vice president of the Institute, has announced.

The sessions will feature an appraisal and analysis of factors influencing Northeast fertilizer-using practices, based on a survey conducted for the Institute by National Analysts, Inc., of Philadelphia.

Dr. Mason H. Campbell, dean of the College of Agriculture and director of Experiment Stations, at the University of Rhode Island, will preside and open the conference with an address of welcome. W. R. Allstetter, vice president, will present greetings from the Institute.

Dr. M. S. Williams, chief agricultural economist of the Institute, will present a report on "Factors Influencing the Use of Fertilizers in the Northeast." Following, an appraisal of factors influencing the use of fertilizers in New England will be presented by:

Harry R. Mitiguy, agricultural economist, Federal Reserve Bank of Boston; Henry M. Hansen, associate director of extension, University of Connecticut, and Dr. Dale H. Seiling, dean of the College of Agriculture, University of Massachusetts.

In the afternoon, three agricultural authorities will discuss the use of the National Analysts survey as applied to New England. The participants will be:

Dr. Roland H. Struchtemeyer, head, department of agronomy, University of Maine; W. F. Henry, head, department of agricultural economics, University of New Hampshire, and Winston Way, extension agronomist, University of Vermont. Mr. Allstetter will discuss the Institute's plans for using the results of the survey.

Louis Webster, director of the division of markets, Massachusetts Department of Agriculture, will be the banquet speaker and Edward R. Jones, member of the Institute's board of directors, will preside.

The conference, which will bring together representatives of the New England fertilizer industry and leaders of the New England colleges of agriculture, was arranged by Mr. Jones and Walter E. Meeken, also a member of the Institute's board of directors.

Registration will begin on the evening of Sept. 24, Sessions will begin at 10:00 a.m., Sept. 25, concluding with the banquet. The meeting will be open to members of the Institute and invited guests and reservations should be made with the Bald Peak Colony Club.

Gloomicides

An aged professor at Oxford University couldn't reconcile himself to the fact that girls were permitted to study there. Although their number increased through the years, he still ignored them and opened his lectures simply with "Gentlemen!"

One day, however, he noticed to his horror that only one male was present; all the rest of the students were female. The professor bit his teeth together, directed his look toward the single other male, and began, "Sir!"

★

Hear about the fellow whose father told him about the birds and bees and made it so interesting that he never went with anything but pigeons until he was 21?

★

A motorcycle cop flagged a couple of speedsters at the same time. The lead car had a dazzlingly pretty girl at the wheel, and the appreciative young man in car number two whispered, "Go easy on her, Bud," as the cope strode by, summons book in hand.

A few moments later, the girl drove off and the cop handed the young man a paper with the girl's telephone number.

"Get going," ordered the cop, "and no more of this 70-miles-an-hour stuff, or you'll never live to use this!"

★

In Michigan, a county welfare director interviewed a youthful applicant, who walked into his office and asked for relief.

"Have you got a family?" the director asked.

"Not yet," the young man said. "But I'm getting married Sunday. I can furnish the groceries. All I want you people to do is pay the rent."

★

Five-year-old Willie had been taught that Sunday is not a day for play. One Sunday morning his mother found him sailing his toy boat in the bath.

"Willie," she scolded, "don't you know it's wicked to sail boats on Sunday?"

"Oh, that's all right, Mummy," he replied, calmly. "This isn't a pleasure trip. This is a missionary boat going to Africa."

★

The supply of uranium in the planet is actually very limited, and it is feared that it may be used up before the human race exterminates itself.

★

No need to be too grateful to the scientists for showing us how to get to the moon. After all, they're the ones who have made it necessary for us to evacuate the earth.

★

"Let me see that letter you've just opened," snapped the wife. "I can see from the handwriting it is from a woman and you turned pale when you read it."

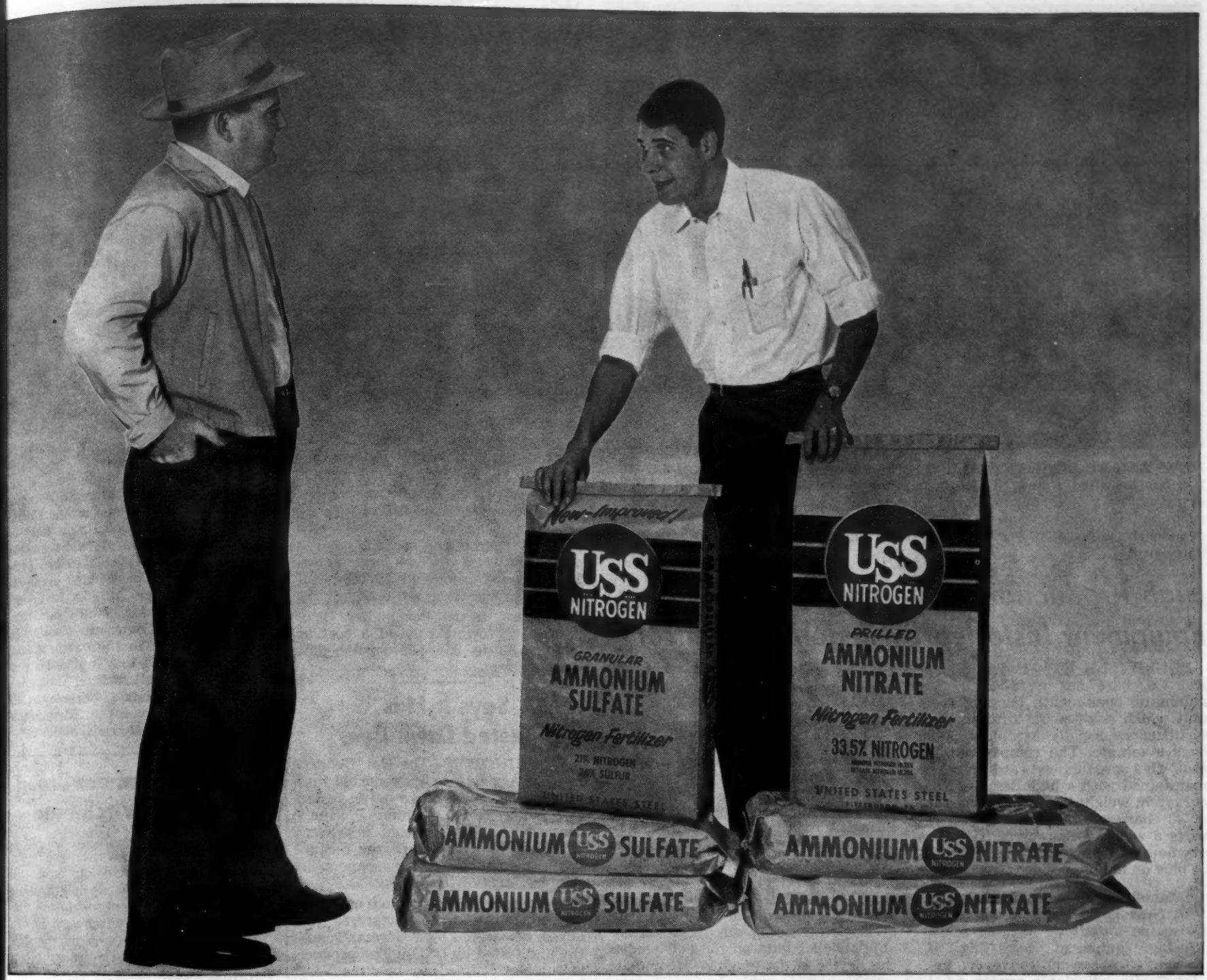
"You can have it," returned the husband calmly. "It's from your milliner."

★

Reports from Los Angeles speak of a newly-invented anesthetic which blots from a patient's memory all recollection of the operation. This should prove a blessing to anyone whose friend has just had one.

★

"Do you say prayers before eating?" the minister asked the little boy. "No, sir, I don't need to," replied the child. "My mother's a good cook."



USS NITROGEN

Rx for fall fertilization

You can help your Western farmer friends with their Fall fertilizer programs by recommending USS Nitrogen Fertilizers now. USS Ammonium Nitrate, USS Ammonium Sulfate and USS Anhydrous Ammonia can help you build greater fertilizer tonnage.

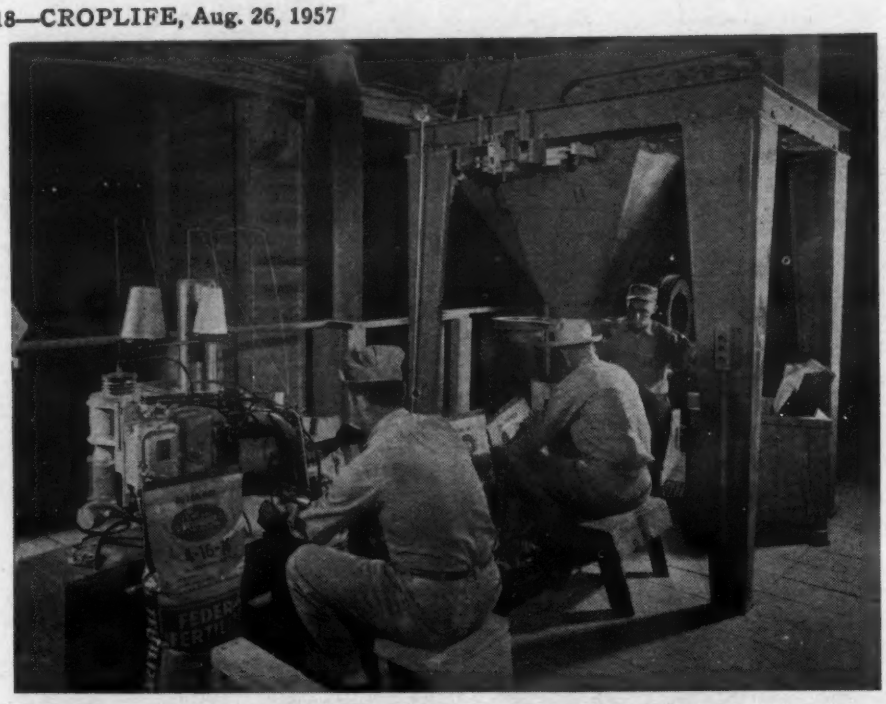
Springtime is busy-time for farmers. Fall fertilizing gets a needed job done and gives them extra time when Spring work piles up. In addition, you usually have a more complete selection in the Fall. Farmers who wait until Spring to do their buying often find popular fertilizers sold out.

As you know, you are not alone under the sign of USS. You are backed up with a widespread Western promotion: radio, billboards, direct mail, local newspapers, magazines, state farm papers, dealer signs, banners and other selling aids.

Add your own sales efforts to these and you will be well-repaid at harvest time... by greater yields for your farmer customers and repeat orders for you next Spring.

USS NITROGEN FERTILIZERS USS

UNITED STATES STEEL



NEW BAG-FILLING INSTALLATION—Federal Chemical Co., Louisville, Ky. has installed a new St. Regis bagging scale which it says can pack as many as thirty 80-lb. bags of fertilizer a minute, with a high degree of weight accuracy. Closing equipment consists of woven wire sewing conveyor, hydraulically adjustable sewing head pedestal, thread cutter and micro fog lubricator.

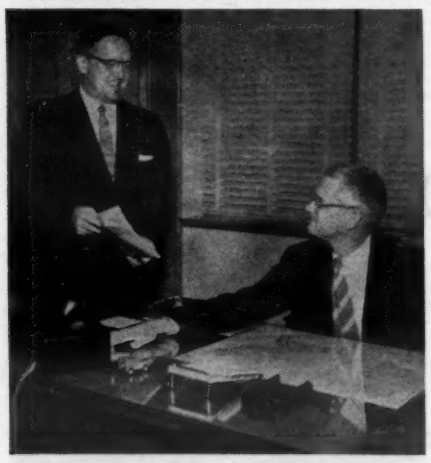
High Production Achieved in New Bagging Equipment Installed by Federal Chemical

LOUISVILLE, KY.—Federal Chemical Co. here has installed a new automatic open-mouth bagging scale unit which enables the firm to pack fertilizer as rapidly as thirty 80-lb. bags a minute. The company states that this production rate may be maintained with a high degree of accuracy in weight control. At the rate of 30 charges a minute, the firm reports a weight accuracy of 95% plus or minus five ounces, and 99.7% within plus or minus 8 ounces.

Manufactured by St. Regis Paper Co., New York, the new unit comprises an automatic bagging scale, closing equipment consisting of woven wire sewing conveyor, hydraulically adjustable sewing head pedestal, thread cutter and micro fog lubricator.

Federal Chemical reports that during an average day recently, the firm packed 190 tons of fertilizer in 4½ hours, with ten grade changes, for an average of 42 tons an hour. This production is credited to a two-compartment arrangement which provides for the filling of one compartment while the other is being used for bag filling. A continuous stream of fertilizer from the belt feeder is diverted from one compartment to the other, rather than stopping the feeder between charges, it is explained.

Entirely automatic with the rate of discharge being set by an adjustable stripper gate on the belt feeder, the device is designed so a complete weighing cycle will always be completed to avoid the possibility of light-weight charges.



DUTY EXCHANGE—An "exchange-of-duties" training program has been announced by officials of Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Co. H. L. Ford, vice president, and Dr. J. E. Magoffin, chemical sales manager of the Kodak subsidiary, stated that the new program has been designed "to meet the company's need for men with broader knowledge and experience in all phases of the division's activities." The first exchange in the new program will involve J. H. Sanders, left above, the chemical division's Cleveland district and R. W. Miller, right, product manager for all industrial chemicals manufactured by Kodak's Texas Eastman division in Longview, Texas. In taking over Mr. Miller's desk at the company's head office in Kingsport, Tenn., Mr. Sanders will assume responsibilities for marketing all Texas Eastman chemicals products. Mr. Miller's move to Cleveland will place him in charge of the division's direct sales in that area.

D. R. Leacock In New Chipman Chemicals Post

HAMILTON, ONTARIO — J. H. D. Ross, general manager of Chipman Chemicals Ltd., has announced the appointment of D. R. Leacock to the position of purchasing agent. A native of Hamilton, Ontario, Mr. Leacock graduated in business administration from the University of Western Ontario in 1942. Following graduation he served as a lieutenant in the Canadian armed forces overseas for three and one-half years. Upon his return to civilian life, Mr. Leacock joined the agricultural chemicals division, Canadian Industries Ltd., Montreal.

In 1956 when Chipman Chemicals Ltd. was reorganized to merge its operations with the pesticides operations of Canadian Industries Ltd., Mr. Leacock became assistant to the general sales manager of the new company in Hamilton, which position he held until his present appointment.

Grace Executive Steps Down, Keeps Board Post

NEW YORK — Hugh S. Ferguson has resigned as an executive vice president of W. R. Grace & Co. but will continue in an advisory position and as a member of the board.

Mr. Ferguson has played a prominent part in the development of W. R. Grace & Co. in the chemical industry. He was president of Dewey and Almy Chemical Co. at the time of its merger with W. R. Grace & Co. in 1954, and the next year assumed the position of executive vice president of W. R. Grace & Co., in charge of the chemical group.

Wisconsin Pacemakers Grow Average Corn Yields of 106 Bu.

MADISON, WIS. — Wisconsin soil specialists report that corn yields have averaged 106 bu. per acre for the past five years among farmers who have taken part in the Wisconsin Corn Pacemakers program. Dr. K. C. Berger, of the University of Wisconsin, says that many farmers who closely follow every recommendation of the University, are averaging 140 bu. of corn per acre.

"We've had yields as high as 212 bu. and a very large number ranging from 170 to 190 bu. per acre," he says.

In the Corn Pacemakers program, university specialists make individual recommendations farm by farm for top yields. In each case, the specialists make sure that enough fertilizer is used, based on soil tests, so that the corn will have all the nutrients it needs.

The university men also give farmers suggestions on how many corn plants per acre are needed, how to control insects, diseases and weeds. They also recommend methods of seedbed preparation and cultivation.

Farmers in the Pacemakers program are growing corn at a cost as low as 35 to 55¢ per bushel, Mr. Berger says.

USDA Says It Has Not Tested Lawn Dye

WASHINGTON—The U.S. Department of Agriculture has reported that its turf specialists have never tested a product called "Green Plasma," contrary to claims made in advertisements that have appeared recently in a number of newspapers in various parts of the U.S.

Promoters of the product have described it as a color-restorer for lawns, discovered by a German scientist and tested by USDA. The product is further claimed to be "the very same type wonder treatment" used on the Capitol lawn in Washington, D.C., USDA said.

Scientists of USDA's Agricultural Research Service who test plant foods and fertilizers, and dyes sometimes used to color plants, point out that they have not tested the advertised product, and have made no recommendations regarding its use.

The advertisements claim that by sprinkling a small amount of the product on a lawn, the user will never have to worry about a burned-out lawn, nor have to "spend time, energy and good money on 'fast-greening fertilizers and plant foods.'"

USDA said its scientists still recommend adequate water, plus lime and proper fertilizers when needed, as essential in maintaining or improving the quality of a lawn.

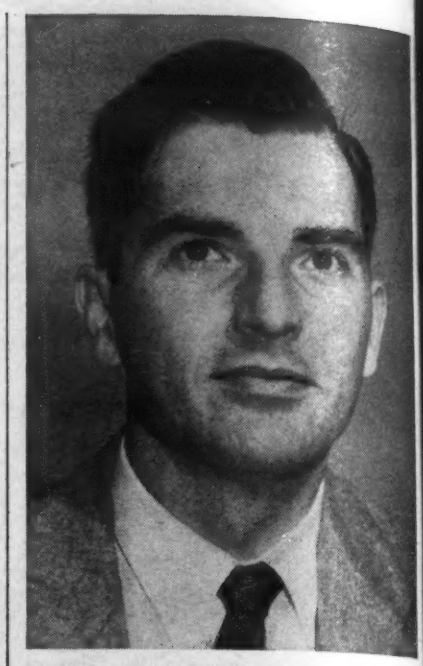
North Carolina Soils Need Lime, Specialist Says

RALEIGH, N.C.—Tests show that most North Carolina soils need more lime, William White, North Carolina extension soils specialist, has reported. He said tests indicate that almost every acre of cultivated land in the state needs at least one thousand pounds of lime.

"Figured on the basis of the average size North Carolina farm," Mr. White said, "every farm needs 15 tons of lime applied to the total crop land to maintain the correct degree of acidity."

Carolinas-Virginia Formulators to Meet

RALEIGH, N.C.—The fall meeting of the Carolinas-Virginia Pesticide Formulators Assn. will be held Nov. 18-20 at the Carolina Hotel, Pinehurst, N.C., W. R. Peele, secretary-treasurer, has announced.



Aaron K. Stull

TRANSFERRED—Aaron K. Stull, Crag Agricultural Chemicals sales representative, Union Carbide Chemicals Co., Division of Union Carbide Corp., has been transferred from the Rocky Mountain states to the company's Pacific Coast sales area. He will headquarter at his Riverside, Cal., residence. Mr. Stull's sales territory will be Southern California. With this move to the Pacific Coast, Carbide now has two Crag sales representatives stationed in this area. Robert E. McKenzie, Berkeley, Cal., will continue to cover Washington, Oregon and Northern California.

Carolina Farmers Urged To Control Witchweed

CLEMSON, S.C.—As farmers of 13 Carolinas counties awaited the beginning of a quarantine to stop the spread of witchweed, agricultural authorities of the two states began urging farmers, "Stop witchweed now."

Cooperative programs of the U.S. Department of Agriculture, North Carolina State College, and Clemson College are expected to produce more desirable and effective methods of control, but meanwhile definite action should be taken immediately to prevent the parasitic plants from going to seed—and each one can produce up to a half-million seeds, authorities said.

"Control methods should be undertaken as soon as the first flower appears. Many plants are now blooming. Don't let it go to seed. Do these jobs now!" farmers are being told.

The quarantine will govern interstate movement of such articles as soil nursery stock, plants with roots attached, tobacco, peanuts in shells, ear corn, soybeans, and small grains.

Officials said permits would be issued for movement of quarantine-subject articles which have not been exposed to infestation, or which have been treated to counteract the infestation.

Witchweed is an extremely dangerous parasite weed which attaches itself to the roots of grassy plants and can completely kill corn.

Fred C. Fore, of the South Carolina Department of Agriculture, termed the witchweed situation as "one of the most serious things we have had in South Carolina."

Last summer, when the pest was found in the two states, scores of farms were found to be infested—more than 250 in North Carolina, and over 100 in South Carolina. Whole stands of corn were lost; others suffered from stunting as if they had suffered drouth.

VEGETABLE GROWERS TO MEET

NEW ORLEANS — The Vegetable Growers Association of America has announced that its annual convention will be held in New Orleans Dec. 8-12. Headquarters for the meeting will be the Jung Hotel. In addition to the formal program, a trade show will be featured at the hotel.

Monsanto Announces Executive Shifts in Organic Chemicals

ST. LOUIS—The creation of two new regional sales managerships tops a long list of sales executive shifts in Monsanto Chemical Co.'s Organic Chemicals Division effective Sept. 1.

John L. Hammer, Jr., director of marketing for the division, announced the moves as designed to "strengthen area administration of sales activities and to adjust to the division's pattern of rapidly expanding sales."

James A. Singmaster, district sales manager at New York for the division, has been appointed eastern regional sales manager with responsibility for the Everett, Mass., New York, Wilmington, Del. and Atlanta, Ga. sales districts.

Forrest M. Luckett, district sales manager at the division's Chicago office, has been appointed central regional sales manager in charge of the Chicago, St. Louis, Houston, Detroit, Cleveland and Cincinnati sales districts.

Edward A. Schuler of San Francisco, western regional sales manager since 1953, will continue to supervise activities of the division's Seattle, San Francisco and Los Angeles sales districts.

H. James Lawler of St. Louis, sales manager of resin materials, moves up to an assistant directorship of sales. Herbert S. Parham of St. Louis, appointed an assistant director of sales in 1955, assumes responsibility for the fine chemicals, agricultural chemicals, petroleum additives and intermediates product groups.

Ernest S. Robson, assistant district sales manager for the division in New York, becomes district sales manager there, succeeding Mr. Singmaster. Howard I. Armstrong of St. Louis, sales manager of plasticizers, becomes district sales manager at Chicago, succeeding Mr. Luckett. Herbert C. Koehler of St. Louis, sales manager of agricultural chemicals, is appointed assistant to the director of marketing for the division. James W. Starrett, Jr., sales manager of fine chemicals, becomes sales manager of agricultural chemicals.

W. B. Copeland Joins Olin Mathieson Corp.

LITTLE ROCK, ARK.—W. B. Copeland has been appointed division vice president of the Plant Food Division of Olin Mathieson Chemical Corp., according to a recent announcement by S. L. Nevins, vice president.

Mr. Copeland was previously executive vice president of Smith-Douglass Co., Norfolk, Va. In his new position with Olin Mathieson he will be concerned with all phases of agricultural chemical operations.

Mr. Copeland has had 25 years' experience in the agricultural chemical industry, having joined Smith-Douglass in 1932. For nine years he served as salesman and sales supervisor and in 1941 was named district sales manager. In 1945, when Smith-Douglass began its expansion into the midwest, he supervised the establishment of a new plant at Streator, Ill. and, was then responsible for production, purchasing, sales and product development.

In 1948, he was appointed vice president for the midwest division in charge of operations of the Streator plant and one in Albert Lea, Minn., and in 1951, began a two year study of the use and production of ammonium phosphate fertilizers in the United States and Europe. In 1953, he was made responsible for the expansion of Smith-Douglass into this production area.

In 1954, he was named executive vice president responsible for production sales and product development.

Louis E. Wheeling Joins Mississippi River Chemical

ST. LOUIS—Louis E. (Pete) Wheeling recently joined the sales department of Mississippi River Chemical Co., a division of Mississippi River Fuel Corp., St. Louis, according to John L. Sanders, sales manager. Mr. Wheeling will assist Bradley & Baker, the firm's sales agents, in marketing the nitrogenous products produced by Mississippi River Chemical.

Louis E. Wheeling

Mr. Wheeling attended the University of Missouri for five years before joining the plant food division of Swift & Co. in 1934. He was called into military service during World War II and also served in the Korean hostilities, leaving the service as a lieutenant colonel. Most recently, Mr. Wheeling was connected with Olin Mathieson Chemical Corp. as fertilizer manager of the overseas division. His headquarters will be in St. Louis.

Irrigation Expands In High Plains Area of Texas

COLLEGE STATION, TEXAS—Almost a quarter of a million acres was added to the total acreage being irrigated in the High Plains area of Texas during the past year. Water to take care of the additional acreage and to permit a better job of irrigating existing lands came from an additional 5,653 wells.

These facts are revealed in the annual survey of irrigation on the High Plains recently released by D. W. Sherrill, irrigation agent for the Texas Agricultural Extension Service with headquarters in Lubbock. Mr. Sherrill's report covered irrigation activities in 42 counties.

The report shows that 18,344 farms in the 42 counties are irrigated. The total acreage under irrigation now stands at 4,568,880 acres and the number of wells at 42,225. Hale County farmers are now irrigating 500,000 acres and lead the area in that respect. Lubbock and Hockley counties have the largest number of irrigated farms and number of wells. Seven counties in the area, Deaf Smith, Parmer, Castro, Swisher, Lamb, Hale and Lubbock are listed as having in excess of 300,000 acres each under irrigation.

Mr. Sherrill reports that grain sorghums, cotton and wheat were the major crops irrigated last year with a combined acreage total of just over 4 million. Other crops irrigated included sudan, barley, corn, legumes, pastures, vegetables and other specialty crops.

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WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

Progress has been made in the plans for the establishment of a fertilizer plant in Trinidad. Estimated cost is $19 million, with construction scheduled to begin in January of next year.

A major advantage, government officials say, will be the saving of foreign currency, an important point because much of the current importation of fertilizers emanates from dollar areas. And hard currency is in short supply.

The newly-formed company has been granted pioneer status, which means the granting of special tax benefits in the early years of operation. Moreover, the market for the nitrogenous fertilizers to be produced has already been sewn up. The West Indies, British Guiana and British Honduras are to be given priority of supply for ammonium sulfate and urea, both of which are imported in large quantities into those areas. In addition it is expected that consumption will increase, particularly if prices can be brought down.

Sulfuric Acid Plant Sought for Brazil

S.A. Industrial de Minerios e Acidos of Rio de Janeiro is seeking about $1 million, in the form of equity financing, for the mining of pyrites and the production of sulfuric acid.

Any suitable proposal will be considered and the American investor will be permitted to have the controlling interest in the proposed project.

The suggested site is in Santa Luzia, a suburb of Belo Horizonte, where the firm owns 322,920 square yards of land. This site adjoins a fertilizer factory, now under construction, which has contracted for approximately 35% of SIMA's sulfuric acid production. The firm is interested in talking to a U.S. firm capable of utilizing the remainder of the proposed production.

SIMA states that it already owns a new integrated sulfuric acid plant equipment and holds the pyrite mineral rights in an area covering 1,447 acres in Ouro Preto in the state of Minas Gerais.

Sulfur Resources In Poland

The British Sulfur Assn. reports that the potential importance of the sulfur deposits in southeastern Poland has been highlighted by the completion of preliminary investigations which reveal the existence of upwards of 110 million tons of sulfur in native ore.

If this is true, then Poland will rank as the second or third largest source of supply after the U.S. and Mexico. Some trade sources, however, suggest that the figure published by the Poles represents ore—but even if this is correct, Poland would still rank among the six largest sources in the world.

Initially, the association states, the Polish government envisaged that the development of the sulfur resources might be accomplished with economic and technical assistance from Soviet Russia or Czeckoslovakia. Recent political developments, however, have caused the Poles to swing away from Russia. Officials do not consider that Russia is in a position to provide the necessary know-how to do the job.

Nor do the Russians work with that speed which the Poles deem essential in this case. So inquiries for assistance are being pressed in Western European countries, notably Germany and Great Britain.

The main need, aside from know-how in dealing with the problems of sulfur beneficiation and refining, is long term credit either in money or in kind. However, attractive the sulfur project might appear to be, it has been given a relatively low priority with food, coal and transport capital-wise.

By making a deal with a Western European nation, the Poles think they may be able to insure an outlet for production. Moreover, they could pledge sulfur to the provider of the cash or necessary machinery.

Grasshopper Problems

Conditions that kept grasshopper damage to a minimum this year despite the threat of serious infestation will likely work to farmers' disadvantage in 1958. H. E. Wood, chairman of the Manitoba grasshopper control committee, said the threatened heavy infestation and damage this year was nullified by a combination of cool, damp June weather, which resulted in delayed hatching; and excellent early progress of crops which were well advanced before grasshoppers made any noticeable inroads.

However, the combination of delayed hatching and lush growth hampered control measures, and resulted in a large number of grasshoppers being around at this time that otherwise would have been killed. A survey now underway will probably show a heavy build-up of hoppers in the same areas of Manitoba that were infested during the past two years. Mr. Wood reported that July heat was particularly favorable for grasshoppers to lay eggs. Hoppers have also been actively laying eggs since the beginning of August.

While there have been no official reports from Alberta and Saskatchewan, it is believed that the general outlook does not suggest any major areas of heavy infestation of eggs. However, it is anticipated that there will be some pockets in eastern Saskatchewan that may show fairly heavy deposits of eggs.

Meanwhile, Australia is also facing grasshopper problems. Federal and state governments have agreed on a trial campaign to control grasshopper plagues in the Bogan-MacQuarie district of New South Wales. The campaign will be concentrated on destruction of swarms of pests in the first stages of their development instead of waiting until a plague has developed.

More Plants Needed In Portugal

Portugal needs more fertilizer plants. Uniao Fabril de Azoto, Lisbon, in its annual report, has stressed the need for the establishment of ammonium nitrate facilities if the market for fertilizers is to be satisfied by home production. In 1956, total fertilizer production in Portugal reached 104,000 tons, the firm says, and consumption was about double this figure.

The government has put up a large sum of money to boost the production of nitro-ammoniacal fertilizers. Two factories, scheduled to be working by 1959, will produce 80,000 tons a year of nitrogenous fertilizers.

Four Diamond Alkali Executives Elected to New Management Posts

CLEVELAND — Election of four key executives of Diamond Alkali Co., Cleveland, to new management assignments was announced here Aug. 20 at the firm's national headquarters by Raymond F. Evans, chairman and chief executive officer, following action by the board of directors.

A. H. Ingley, vice president—manufacturing for the past nine years and a director of Diamond since April, now becomes senior vice president, a newly-created position.

James A. Hughes, treasurer of the company since mid-1955, is now advanced to vice president—administration, also a new post in the Diamond organization.

Donald S. Carmichael, secretary for ten years, is named to the additional post of general counsel.

R. H. Armor, assistant treasurer since 1953, succeeds Mr. Hughes as treasurer.

As senior vice president, Mr. Ingley, a veteran of 37 years' service with Diamond, will assist and back up John A. Sargent, company president, in the interpretation, coordination and execution of long-term plans and policies affecting the company's activities through its seven operating divisions and other organizational units.

Mr. Hughes will be responsible for the execution and coordination of all financial, purchasing, traffic and employee relations policies and programs. Mr. Armor, as treasurer, will be responsible for the usual financial functions of this office and report to Mr. Hughes.

Crop Care to Receive First of New Planes

BURBANK, CAL.—The first three aircraft, of an initial order of 15, is being delivered this week to Crop Care, Inc. by National Aircraft Corp., manufacturers of the National A-75 agricultural airplane, National Aircraft officials have announced.

This delivery will initiate the largest single order ever placed by an agricultural aircraft firm in the U.S., involving a purchase of over $225,000, they said.

Crop Care, Inc., a California corporation, has operations in the United States and Australia. The company plans to modernize its entire fleet with the newly developed airplane. Charles H. Branstetter, Jr., is president of Crop Care, Inc.

Expanding Markets To Be Theme of Cotton Mechanization Conference

MEMPHIS—The program of the 1957 Beltwide Cotton Mechanization Conference will center around ways and means of expanding cotton markets to at least 20 million bales. The conference will be held Oct. 2-4 in Shreveport, La., at the Washington-Youree and Captain Shreve hotels. It is sponsored by the National Cotton Council in cooperation with Louisiana State University and other Cotton Belt land-grant colleges, farm equipment industry, U.S. Department of Agriculture and other groups.

Subjects to be included on the program are the specific engineering needs for more efficient production, management engineering in reducing costs, land forming and preparation in low-cost production, future planting methods and equipment, possibilities for more efficient and lower cost weed control methods and the economics of harvesting cotton mechanically when the latest know-how is wisely applied.

A large part of the program will be devoted to weed control. A field demonstration will show the latest promising techniques in weed control from pre-emergence to harvest time.

Robert L. Stevenson

d-CON APPOINTMENT—Robert L. Stevenson has been appointed manager of the newly-opened plant in Alliance, Ohio, of the d-Con Co., Inc., manufacturer of rodenticides, it was announced by Frank A. Corbet, president. The firm, whose plant and offices were formerly located in Chicago, was acquired in 1956 by Sterling Drug Inc. Executive and administrative offices were transferred to Sterling's New York City headquarters early this year, and manufacturing operations commenced in June at its new plant in Alliance. Mr. Stevenson became associated with Sterling Drug in 1945.

Spencer Henderson Works Closed by Strike

KANSAS CITY, MO.—The Henderson, Ky., works of the Spencer Chemical Co. have been closed by a strike called Aug. 13 by the A.F.L.-C.I.O. International Chemical Workers Local 644.

The 240 workers walked off the job to emphasize their demands for wage increases. Robert S. Lemon, director of labor relations for Spencer, said the union has asked for a 4½¢ an hour wage hike plus some other money items in the fringe-benefit category.

A federal labor conciliator, called in before the strike began, has scheduled a resumption of negotiations between the company and the union for Aug. 22.

The Henderson works produces anhydrous ammonia, ammonium nitrate, nitrate solutions and nylon 6. Spencer plants at Vicksburg, Miss., and Pittsburg, Kansas, also produce anhydrous ammonia, ammonium nitrate and nitrate solutions.

Symposia Scheduled For ACS Meeting

NEW YORK—Several symposia are scheduled for the meeting of the Division of Agricultural and Food Chemistry, American Chemical Society, which will be held Sept. 8-13 in New York. They will be on future utilization of agricultural commodities, fermentation process and equipment design, pH control in fermentation, radio-tracer techniques in pesticide studies, nonclinical uses of antibiotics and the chemistry and physiological actions of gibberellins.

A total of 26 papers will be presented at the sessions of the Division of Fertilizer and Soil Chemistry.

MOVE OFFICE

BREA, CAL.—R. L. Luckhardt, supervisor of the agricultural technical service for Brea, and I. G. North, agricultural engineer of the field equipment service, have moved their offices from 714 W. Olympic Blvd., Los Angeles, to the Brea plant, P.O. Box 128, Brea, Cal. The telephone number is Jasper 9-2151. The plant is located two miles east of Brea.

NEMATODE WORKSHOP

(Continued from page 1)

rds of four times their investment the chemical, he said.

He gave an example of a high eturn on investment where tobac- growers in the Quincy area got ack approximately $500 for the 30 they spent for chemicals to ontrol one acre.

In experiments on living citrus ees, two chemicals show some prom- . R. F. Suit, a plant pathologist at e University of Florida's Lake Al- ed Station and one of the two men ho proved that the burrowing matode causes "spreading decline," id experiments with the chemicals Nemagon Soil Fumigant and VC- —so far show both keep the nema- de population down, when applied irrigation water. But trees have t regained their normal health, he id.

Mr. Suit also is conducting experi- ents with chemical barriers to pre- nt the under-ground spread of the festation. At one time 12 miles of foot wide barriers were injected ith soil fumigants. Mr. Suit report- d that only one of the barriers, bout 700 ft. long, seems to be effec- ve. He said a disadvantage of this ethod is cost. A 50-ft. barrier 870- t. long would cost approximately 500 a year to maintain.

Meanwhile, according to Mr. Suit, he burrowing nematode can be topped only by destroying infested rees and treating the soil with D-D, chemical that kills trees as well as ematodes.

Another approach to controlling spreading decline" was described by . W. Hanks, assistant plant physi- logist, also of the Lake Alfred sta- ion. He is searching for a chemical hat will give a tree a built-in defense gainst the burrowing nematode. Chemicals that give field crops this rotection against above-ground in- ects are now on the market. Called ystemic insecticides, they are ab- orbed by the plant and carried owards the top of the plant in its uices. Thus, any insect feeding off he plant is killed.

Mr. Hanks gave four requirements or a systemic nematicide: It must ove downward into the roots where ematodes feed, repel the burrowing ematode or interrupt its life cycle, ave no effect on the fruit and be nexpensive.

Experiments to control nematodes n annual crops were described by C. I. Hannon, assistant nematologist, t the Lake Alfred Station. He said hat population of nematodes attack- ng some crops can be suppressed by otating plantings with crops that he pest does not attack. Also, con- rol of weeds on which nematodes eed until a more appetizing crop is lanted helps keep populations down.

Two scientists, whose work was eported by Mr. Hannon, have reduced oot-knot nematode infestations on elery by flooding the land. Working n the Everglades the men flooded experimental plots and then planted low-land rice. Later they planted elery and found a reduction in ematode damage. For most crops oil fumigation gives the best pro- tection against nematode attack, Mr. Hannon said.

A University of Florida scientist listed the six nematodes that cause the greatest damage to Florida crops.

Heading the list was the burrow- ing nematode, the cause of "spread- ing decline" of citrus trees. Up until a few years ago the root-knot nema- tode, which feeds off more than 1,700 different plants — everything from vegetables to lawn grasses—would have been ranked first, according to J. R. Christie, a nematologist at the University's Gainesville Agricultural Experiment Station. The damage the burrowing nematode did in the pep- per fields of Sumatra caused him to change his mind.

"In 30 years the burrowing nematode has almost wiped out the pepper-growing industry on the island of Banka," he said, "and it could do the same to Florida's citrus industry."

The ability of the root-knot nematode to adapt to different crops and soils makes that pest especially dangerous. For several years scientists thought they had crops that were root-knot resistant. One such was a cover crop called Hairy Indigo. After successfully growing that crop for several seasons in soil infested with nematodes, scientists now find that root-knot nematodes are beginning to attack the plant.

"Because of examples like this, we can no longer make a list of resistant crops with the same confidence we did 15 years ago," Mr. Christie said.

Sting nematodes, appearing third on Mr. Christie's list, have helped force celery growers in the Sanford area to begin moving from the more ideal sandy soil to muck land, where sting nematodes have not been found. They have also disrupted celery growers' crop rotation programs. "Growers cannot follow celery with sweet corn," Mr. Christie said, "unless they fumigate their land with chemicals."

Fourth on the list are stubby-root nematodes, described as "experts at deception." According to Mr. Christie this type does not look like a plant parasite, and the symptoms of crop damage could also be produced by various root diseases. When the stubby-root was fingered as a plant parasite by scientists, experiments showed that they could kill a vigorous corn seedling in a matter of days.

A nematode that has created a serious problem in California citrus groves ran fifth on Mr. Christie's list. Called the citrus nematode, it has spread since 1920 from three localities in Florida to all the citrus-growing areas of the state. Mr. Christie said, "The percentage of infected trees may not as yet be very high, but the problem can become much more serious."

The nematode with the greatest fondness for lawn grasses, especially St. Augustines, ranked sixth on the list. Other nematodes, according to Mr. Christie, such as the sting and root-knot also attack lawns, but the crown-headed lance nematode does more damage by feeding on roots.

"Though not the sole cause of poor lawn and turfs, nematodes are one of the most important causes of damage," Mr. Christie said.

"Annual crops can be protected against nematode attack by applying soil fumigants, such as D-D, to fields before planting. However, fumigants that give control on annual crops cannot be used on perennials, such as citrus trees and ornamentals, since they damage growing plants. Some newer chemicals—Nemagon, Fumazone and V-C 13—show promise of providing control for perennials."

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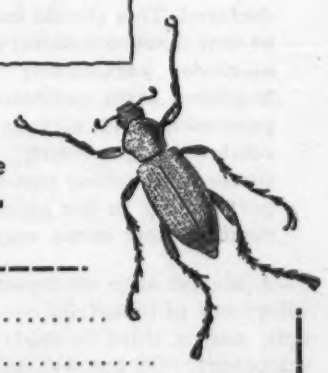

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New Research Horizons Needed in Changing Scene

The changing scene in American agriculture reflects throughout the economy, but in few places with as much effect as in the pesticide and fertilizer industries, and in the research emphasis followed by various agencies both private and governmental. The "good old days" (many of which we recall were not so good at all) are gone, and this fact must be faced.

Fertilizer use is no longer a luxury to be indulged in when the farmer has some extra cash to toss around. Nor are pesticides a tool that can be omitted from crop production at the whim of the grower. These and other chemical aids are reaching an importance beyond the imagination of agriculturists of a generation ago.

One of the finest appraisals of the changing situation was given by Dr. Glenn H. Beck, director of the Kansas Agricultural Experiment Station, in a recent talk. He said that on a national scale, the U.S. is approaching the point where only 10% of the population will live on farms, although some individual states will exceed this average. This shift has meant a better standard of living for many of the people, but has brought to the farmers a lot of problems, well known to everyone.

Problems rising out of surplus production, government controls, higher costs of operation, and greater capital risks are now more important than production problems, he pointed out.

"We are entering an era when farming must be regarded as big business—and a farmer must have business skills in order to survive. We now average $15,000 capital investment per farm worker, as compared with $13,000 for an industrial worker," it was noted.

Such changes make necessary a switch in research emphasis to include not only aids to increase efficiency of production, but "we must now broaden our viewpoint to include research that will help us solve these new problems. This does not mean that we can discontinue our original research objective," he said, "but we must keep striving for increased efficiency of producing because if we do not move forward, we slide backward. The forces of nature such as drouth, soil erosion, insect damage, and disease never take a holiday."

To the total research program, Dr. Beck suggested adding some new approaches to the new problems facing the American farmer. Urgently needed is a more intensified research program in marketing, he declared. This should include problems such as new market outlets; efficiency of existing markets, particularly local markets, in handling farm produce; new methods of processing and merchandising; quality as related to processing, handling, and consumer preference; and specialized markets, particularly in the areas where through irrigation new crops may be introduced.

A second area of research, he said, is the development of industrial uses for agricultural products, and a third is that of rural economic development. "Of the 4½ million farms in the U.S. less than one-half are producing nearly 90% of all the food and fiber entering commercial trade channels. Thus, the farm people on about 2½ million farms are in need of larger farms or off-farm employment. The possibilities for increased industrial development in many rural Kansas communities should be explored," he noted.

A fourth item of particular importance in the Great Plains area is that of "determining the most effective use of land to cope with the peculiarities of climate, and at the same time provide a decent living for farmers," he went on. "We have had a succession of government aid and government control programs that treat the symptoms but do not cure the disease. More basic information is needed concerning the economic effects of land use adjustment."

DDT "Trial" Due For Court Session Soon

A "DDT trial" is apparently set to come off in New York before long, wherein not only that insecticide, but most of its fellow-toxicants would also be brought to account. The furor arises over the recently-concluded gypsy-moth eradication program in the states of New York, New Jersey, and Pennsylvania. A joint effort between these states and the Federal Government encompassed some three million acres of forest land, but included also the properties of a number of people, some of whom objected greatly to their being "doused with poison" against their wills.

Judge Mortimer W. Byers, Federal judge in Eastern District Court, Brooklyn, recently turned down the government's petition to dismiss a suit brought by a group of Long Island residents. This, according to the New York World Telegram and Sun, will probably bring about "an historic trial of DDT."

The newspaper, which has consistently given its readers a decidedly anti-DDT viewpoint of the gypsy moth program, reported that the complaint filed by the Long Island group charged that "DDT is, and is recognized and admitted by the defendants to be, a delayed-action, cumulative poison such as will inevitably cause irreparable injury and death to all living things, including human beings, animals, birds, insects and the predators and parasites of harmful insects, if ingested, inhaled or brought into contact therewith in sufficient quantities or over a sufficient period . . ."

Just when the "trial" will get under way is not yet known, but it is a sure bet that when the time comes, it will be a field day for scores of people who are so sure that the use of pesticides is slowly killing the human race, that they don't want to be bothered by facts to the contrary. It will be an interesting and exciting spectacle to behold.

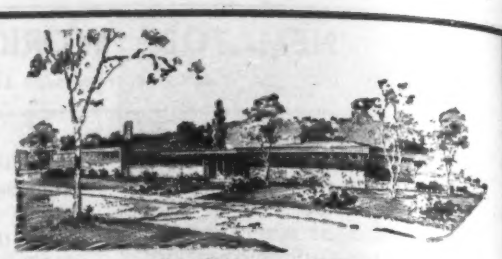
Freight Hike Raises Ire of Fertilizer Industry

The fertilizer industry's reaction to the Interstate Commerce Commission's recent granting of freight rate boosts to the railroads is about what one would expect from any person or persons who have experienced having a rug yanked from under them. The fertilizer trade doesn't like it.

About the only cheerful note sounded by trademen, contacted after the ruling was announced, seemed to be that the rate rise could have been steeper. Even this glimmer of optimism could well be darkened in the future, for the ICC left the door open for rail carriers to come back later to ask for further increases.

With freight expenses being one of the most important factors in the price of fertilizers, the question arises immediately how far can the trade go in passing on the increased costs to the farmer. Even though the price of plant food has risen very little over the past few years, in relation to the increased costs of nearly everything else the farmer purchases, there is likely to be a considerable resistance to the trade's upping the price tag.

Greater efforts will have to be made to sell the farmer on the merits of higher analysis mixtures. An intensification of educational and sales efforts on this point will help to offset the freight cost situation, since the more plant food a manufacturer can concentrate in each ton of mixed goods, the less the freight costs will be per unit of nutrient.



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Croplife

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG
Editor

DONALD NETH
Managing Editor

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MEETING MEMOS

Aug. 27—National Joint Committee on Fertilizer Application, 33rd Annual Meeting, Stanford University, Palo Alto, Cal., Dr. Willard H. Garman, 1700 K St. N.W., Washington, D.C., Secretary.

Aug. 27-29—Georgia Fertilizer-Lime Short Course, Sponsored by the Georgia Plant Food Educational Society and University of Georgia, University of Georgia Center for Continuing Education.

Sept. 8-13—American Chemical Society, 132nd Annual Meeting, New York City.

EDITOR'S NOTE—The listings above are appearing in this column for the first time this week.

Aug. 26-28—American Society for Horticultural Science, annual meeting in conjunction with annual meeting of American Institute of Biological Sciences, Stanford University, Palo Alto, Cal.

Aug. 28-31—Soil Conservation Society of America, Annual Convention, Asilomar, Cal.

Sept. 4—Kentucky Fertilizer Conference, Campbell House, Lexington, Ky

Sept. 4-6—National Agricultural Chemicals Assn., Annual Meeting Essex & Sussex, Spring Lake, N.J., L. S. Hitchner, 1145 19th St. N.W., Washington 6, D.C., Executive Secretary.

Sept. 5—Annual Farm Day, State College, New Mexico. Gordon B. Hoff, program chairman.

Sept. 5-6—Great Lakes States Anhydrous Ammonia Meeting, Michigan State University, East Lansing, Mich.

Sept. 6—Annual Agronomy Fall Field Day, University of Nebraska, Lincoln; Clinton Hoover, extension agronomist, chairman.

Sept. 8-15—International Congress of Crop Protection, Hamburg, Germany.

Sept. 24-25—New England Fertilizer Conference, Bald Peak, Colony Club, Melvin Village, N.H.

Oct. 2-4—Eleventh Annual Beltwide Cotton Mechanization Conference, Shreveport, La.

Oct. 3—New Jersey Fertilizer Conference, Rutgers University, New Brunswick, N.J.

Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.

Oct. 7-8—Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.

Oct. 15—Association of Official Agricultural Chemists, 71st Annual Meeting, Washington, D.C., Dr. William Horwitz, Box 540, Benjamin Franklin Station, Washington, D.C., secretary-treasurer.

Oct. 17—Conference on Chemical Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 18—Association of American Fertilizer Control Officials (States Relations Committee, 8 p.m. Oct. 17), Shoreham Hotel, Washington, D.C., B. D. Cloaninger, Box 392, Clemson, S.C., Secretary-Treasurer.

Oct. 21-22—Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago.

Oct. 29—Grassland Farming Conference, Rutgers University, New Brunswick, N.J.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Oct. 31—19th annual meeting, Middle West Soil Improvement Committee, Sherman Hotel, Chicago. Z. H. Beers, 228 N. LaSalle St., Chicago, executive secretary.

Oct. 31-Nov. 1—Second Annual Southern Fertilizer Conference and Second Annual Southern Soil Fertility Conference, Dinkler Plaza Hotel, Atlanta, Ga.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco, Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 13-15—National Aviation Trades Assn., Annual Convention, Hotel Adolphus, Dallas, Texas.

Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Collie, 2217 Tribune Tower, Chicago 11, Ill.

Nov. 18-20—Carolinas-Virginia Pesticide Formulators Assn., Carolina Hotel, Pinehurst, N.C. W. R. Peele, 516 S. Salisbury, Raleigh, N.C., secretary.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 3-4—Iowa State College Fertilizer Manufacturer's Conference and Fertilizer Dealers' Short Course, Memorial Union, Iowa State College campus, Ames, Ia.

Dec. 8-12—Vegetable Growers Association of America convention, Jung Hotel, New Orleans, La.

Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.

Dec. 10-12—North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, Program Chairman.

Dec. 11-13—Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

March 4-6—Nitrogen Conference, University of Minnesota, St. Paul Campus.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

Phosphoric Acid Tested As Stabilizing Agent

ST. LOUIS—Promising results have been reported in laboratory tests with phosphoric acid as a soil stabilizing agent in construction projects by the Inorganic Chemicals Division of Monsanto Chemical Co.

According to M. J. Scott, assistant director or research for the division, Monsanto experiments have shown that if 2% of phosphoric acid is added to a fat plastic clay and the material compacted, a hard, durable mass is produced that will withstand prolonged exposure to water and to wintering.

DIVIDEND DECLARED

LOS ANGELES—The board of directors of American Potash & Chemical Corporation has declared a quarterly dividend of 25¢ a share on the Class A and Common stocks. The directors also declared the quarterly dividend of $1.00 a share on the $4.00 cumulative preferred stock, Series A. The dividends are payable Sept. 13 to shareholders of record Aug. 30.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $10 per column inch.

All Want Ads cash with order.

MACHINERY WANTED

WANTED TO BUY—ONE USED TWO-TON Ransome mixer. Address Ad No. 3016, Croplife, Minneapolis 1, Minn.

BUSINESS OPPORTUNITIES

FOR SALE — COMPLETE ANHYDROUS ammonia plant located at Maitland, Mo., on C.B.Q. Railroad siding; 9,000 gallon tank with complete compressor; two 1,000 gallon tanks mounted on four-wheel wagons; applicators, etc. Will sell all or any part reasonable. B. I. R. Supply, Inc., Mound City, Mo.

MACHINERY FOR SALE

FERTILIZER SPREADERS—NEW LEADER 10' 6", Wisconsin Engine Driven Double, Spinners, two compartments, 21' spreading hood, mounted on 1954 Dodge V8 heavy duty 2-ton truck. This outfit came in from drouth area and has not been used last two years. Always shedded. Truck has only 35,000 actual miles and complete unit is in near new condition. For quick sale $3,350. Also power-take-off Model New Leader 10' 6" spreader, with hood, plywood top, can be equipped with engine if desired. Will make a good spare unit, $275 as is f.o.b. your truck, Sheldon, Iowa. Snyder-Meylor Co., New Leader Distributor, Sheldon, Iowa—Phone 58.

NEW PUBLICATIONS

BLACKSBURG, VA.—Among new publications released recently by Virginia Polytechnic Institute are "Control Diseases of Strawberries, Raspberries and Grapes" and "The Unspotted Leaf Miner on Apple Trees."

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A WEEKLY NEWSPAPER FOR THE TWO BILLION DOLLAR AGRICULTURAL CHEMICAL INDUSTRY
Vol. 1
AUGUST 23, 1954
No. 31
Cover Crop Provisions of ACP Outlined
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Impact of Farm Law on Industry Hinges on Diverted Acre Policy
Fall Fertilization, Need for Balanced Fertility Stressed at Wisconsin Ammonia Meeting
Eagle-Picher Sulfonic Acid Unit Starts Up
Compliance Deadline Near for Kennedy Law
Minnesota Armyworm Campaign Saves $40 Million
INSECT, PLANT DISEASE NOTES
See Page 4

Serving the Agricultural Chemical Industry . . .

Croplife is the weekly *news*paper for all phases of the industry from the manufacturers of basic chemicals down the production and distribution chain through the retail dealers. Croplife reaches *all* the key men in the industry. These groups are reading Croplife:

- **Fertilizer manufacturers, mixers and suppliers of fertilizer ingredients**
- **Formulators of Pesticides, Herbicides and other Farm Chemicals**
- **Retail Dealers selling fertilizer, farm chemicals and other farm supplies; Custom Sprayers, Pest Control Operators, and Nurserymen**
- **Farm Advisor Group—county agents, agriculture department officials, extension and experiment station personnel, soil conservation men, bankers and consultants**

Croplife, with a publishing schedule every 168 hours, is reporting news to the industry while it's still news! A staff of 21 crack newsmen in key U.S. cities and backed by 100 special correspondents provides the stop-press coverage of the industry required by readers who make the command decisions.

Croplife's unique distribution plan permits advertising (1) on the national level to the manufacturing core of the industry, and (2) on the regional basis to the marketing segment of the market. Ask a Croplife representative to elaborate on this in terms of your product!

Your advertisement in Croplife will share the *impact* and *import* of Croplife as it reports weekly to the men who create action in the agricultural chemical field.

Croplife . . . for richer sales fields

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